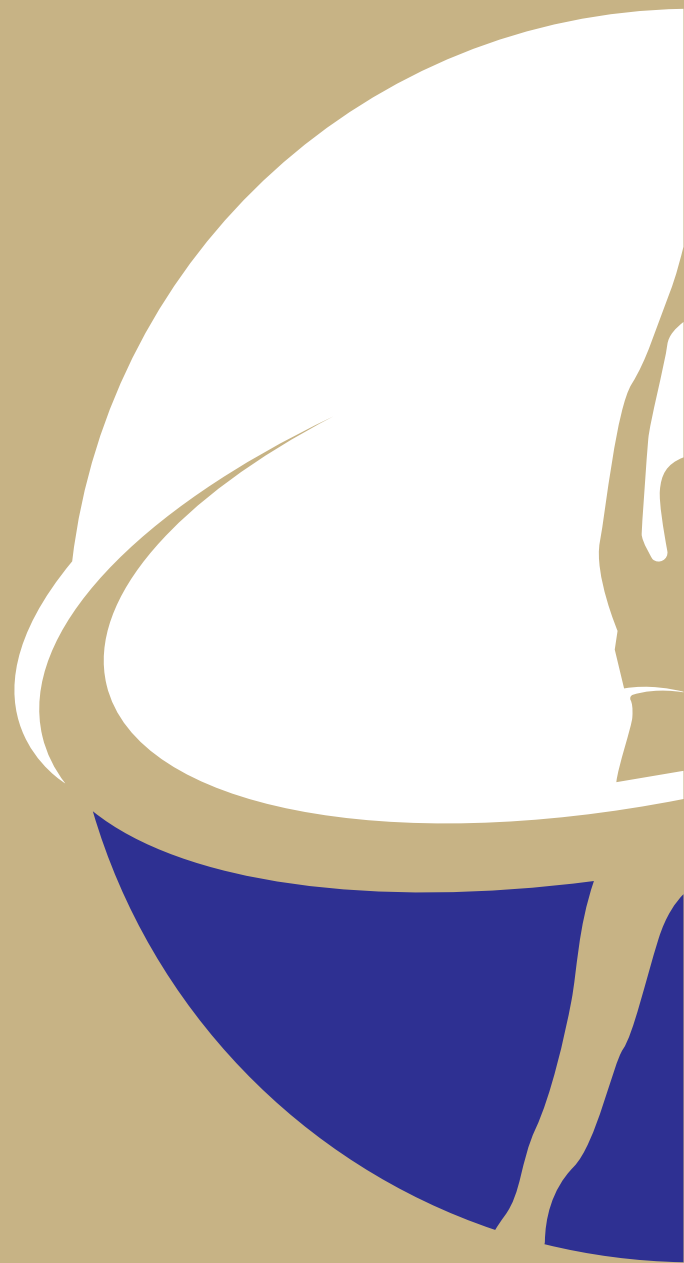


ψysikotherapia

ISSN 2732-9534

Volume 28 Issue 1 January - March 2025
POSTER PRESENTATION OF 32^o PANHELLENIC SCIENTIFIC
PHYSIOTHERAPY CONGRESS



Official Scientific Edition by Panhellenic Physiotherapists' Association

Edition

Panhellenic Physiotherapists Association

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Επιστημονικό Περιοδικό Εθνικής Αναγνώρισης ΦΕΚ 590 Τεύχος Β, 2009

<http://journal.psf.org.gr/index.php>

ISSN 2732-9534

Contents

- «GRIP STRENGTH - FUNCTIONAL REACH TEST: CORELLATION IN OSTEOPENIC WOMEN».....	6
Stasi Sophia, Giannopapas Vasileios, Marouda Sofia, Mavrogeni Ioanna, Bakalidou Daphne	
- "THE EFFECT OF NEUROMUSCULAR EXERCISE ON BALANCE IN PATIENTS WITH KNEE OSTEOARTHRITIS:.....	7-8
A PILOT STUDY"	
Gelatou Nikoletta, Piplidou Aikaterini – Danae, Getzenis Panagiotis,Trachani Eftichia	
- « THE EFFECT OF MAGNETIC STIMULATOR APPLICATION IN THE TREATMENT OF CALCIFIC TENDINITIS9	
OF THE SHOULDER»	
Gelatou Nikoletta, Koukou Ourania, Koukos Konstantinos, Pappas Lampros	
- «CROSS-CULTURAL ADAPTATION, RELIABILITY AND VALIDITY OF THE GREEK VERSION OF THE10	
SPORTS SCORE QUESTIONNAIRE IN ATHLETES WITH VARIOUS SHOULDER PATHOLOGIES	
Andreou Eftychia, Vrouva Sotiria, Koumantakis George	
- THE EFFECTIVENESS OF RESPIRATORY TRAINING AS A PREVENTIVE STRATEGY TO COGNITIVE DECLINE:11	
A SYSTEMATIC REVIEW	
Zekis Theodore, Grammatopoulou Eirini, Zoi Panagiota, Kopitsa Maria, Sakellari Vasiliki, Patsaki Eirini	
- «OFFLOADING OF CHRONIC NEUROTROPHIC OSTEOARTHROPATHY CHARCOT FOOT, USING CUSTOMIZED12	
INSOLE ORTHOTICS, BEYOND ACUTE PHASE. SINGLE CASE STUDY»	
Gigourakis Spyridon, Bounakis Nikolaos , Tzagkarakis Eustratios, Pitikaki Anastasia, Giakas Ioannis, Koumantakis Georgios, Pepera Garyfalia , Giannoukas Athanasios	
- «BILATERAL ARM TRAINING VERSUS CONSTRAINT INDUCED MOVEMENT THERAPY FOR IMPROVING13	
UPPER ILMB MOTOR FUNCTION AND DEXTERITY AFTER STROKE, A SYSTEMATIC REVIEW»	
Papadimitriou Eleftheria, Bania Theofani, Sakellari Vasiliki, Lampropoulou Sofia	
- “THE RESPIRATORY PHYSICAL THERAPY ON CHILDHOOD BRONCHIAL ASTHMA TREATMENT: A CASE STUDY.”.....14	
SachpatzidouEugenia, Dimitriadou Aikaterini, Papadopoulou Ourania, Hristara-Papadopoulou Alexandra	
- PHYSIOTHERAPY AS A KEY TO ENHANCING THE PSYCHOSOCIAL DEVELOPMENT OF CHILDREN15	
WITH AUTISM AND ADHD	
Stavropoulou Marianna, Christara–Papadopoulou Alexandra, Chalkia Anna, Xynias Ioannis, Dafoulis Vaios, Papadopoulou Ourania, Pasenidou Maria, Tevlaki Eugenia, Chatzigeorgiou Dimitris, Aggelis Evangelos	
- «CENTRAL NERVOUS SYSTEM ADAPTATIONS IN PATIENTS WITH CHRONIC ANKLE INSTABILITY»16	
Antzoulatos Nikolaos Panagiotis, Prof. Constantinos Koutsojannis	
- ENHANCING LYMPHEDEMA MANAGEMENT THROUGH EXERCIS17	
Saint Stefania	
- “THE EFFECT OF SHOCK WAVES ON DIFFERENT STAGES OF PLANTAR FASCIITIS: A CRITICAL REVIEW18	
THROUGH COMPARATIVE STUDIES”	
Vitoulas Stergios	
- “EFFECT OF PHYSIOTHERAPY’S METHODS AND TECHNIQUES IN TEMPOROMANDIBULAR JOINT DISORDERS”.....19	
Lianos Panagiotis, Iakovidis Paris	
- "PHYSIOTHERAPEUTIC INTERVENTION USING VIRTUAL REALITY FOR FALL PREVENTION AND BALANCE.....20-21	
IMPROVEMENT IN PATIENTS WITH MS."	
Theodora Bourtsou, Chalkia Anna, Tsigaras George, Hlias Kallistratos	
- «MUSIC AND MUSIC THERAPY DURING PHYSIOTHERAPY INTERVENTION IN INFANTS WITH PREMARITY,22	
DEVELOPMENTAL DISORDERS OR OTHER PROBLEMS: A LITERATURE REVIEW»	
Drogala Aikaterini, Drogalas Panagiotis, Lelouda Stamou	
- «BONE OEDEMA IN AN AFTER COVID-19 ERA: OBSERVATION CASE STUDIES».....23	
Κλοντήρα Μαρία, Γκίρνη Κυριακή, Χριστάρα-Παπαδοπούλου Αλεξάνδρα, Παπαδοπούλου Ουρανία	
- CROSS-CULTURAL TRANSLATION OF THE NORTH STAR AMBULATORY ASSESSMENT INTO GREEK24	
Skoutelis Vasileios C., Moutsiou Renata, Spanou Maria, Mayhew Anna	

- « TEST-RETEST RELIABILITY OF PELVIC FLOOR MUSCLES WITH A SPECIAL SENSOR ».....	25
Aritzakh Despoina, Papanikolaou Dimitra Tania, Dermitzakis Aris, Valchinov Emil, Billi Eudokia	
- CROSS-CULTURAL ADAPTATION OF THE MICHIGAN HAND OUTCOMES QUESTIONNAIRE (MHQ)/BRIEF-MHQ IN GREEK AND PILOT STUDY IN HAND PATHOLOGIES	26
Alexopoulos Marios, Glykas Taxiarchis, Koumantakis Georgios, Petta Georgia	
- « THE EFFECTS OF COGNITIVE FUNCTIONAL THERAPY IN PEOPLE WITH CHRONIC LOW BACK PAIN ».....	27-28
Evgenia Trevlaki, Alexandra Hristara-Papadopoulou, Panagiotis Notopoulos, Emmanouil Trevlakis, Ourania Papadopoulou, Anna Chalkia	
- MACHINE LEARNING APPLICATIONS AND SARCOPENIA	29-30
Michalopoulos N, Billis E, Dermatas E, Tsepis E, Tsekoura M	
- « DYSpareunia: SYMPTOM MAPPING IN FEMALES ».....	31
Zisi Elli , Skoura Anastasia , Papanikolaou Dimitra Tania, Billis Evdokia	
- « RELIABILITY OF 4 DIFFERENT EXAMINERS FOR THE ASSESSMENT OF FORWARD HEAD POSTURE USING PHOTOGRAMMETRY IN UNIVERSITY STUDENTS »	32
Mylonas Konstantinos, Chatzis Georgios, Makripidi Vasiliki, Chrysanthopoulos Georgios, Angelopoulos Pavlos, Tsirogiannis Georgios, Maria Tsekoura, Fousekis Konstantinos	
- « RELIABILITY OF 4 DIFFERENT EXAMINERS FOR THE ASSESSMENT OF SWAYBACK POSTURE USING PHOTOGRAMMETRY IN UNIVERSITY STUDENTS »	33
Mylonas Konstantinos, Chatzis Georgios, Makripidi Vasiliki, Chrysanthopoulos Georgios, Angelopoulos Pavlos, Tsirogiannis Georgios, Maria Tsekoura, Fousekis Konstantinos	
- « THE EFFECTS OF THE APPLICATION OF THE ERGON IASTM TECHNIQUE ON LOCAL AND REMOTE POINTS OF THE SPIRAL MYOFASCIAL LINE IN IMPROVING THE FUNCTIONALITY OF PATIENTS WITH ILIOTIBIAL BAND FRICTION. »	34
Pozidou Aikaterini, Mylonas Konstantinos, Angelopoulos Pavlos, Chrysanthopoulos Georgios, Fousekis Konstantinos	
- « NEUROMUSCULAR PREDICTORS OF PERFORMANCE IN THE MODIFIED ATHLETIC SHOULDER TEST IN SWIMMERS »	35
Tsarbou Charis, Liveris I. Nikolaos, Kokkinakis Zacharias, Bakaraki Akrivi, Skoura Anastasia, Tsepis Elias, Xergia A. Sofia	
- « THE EFFECTIVENESS OF JOINT MOBILIZATION AS A MONOTHERAPY IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS: A SYSTEMATIC REVIEW »	36
Ioannou Olga, Iakovidis Paris, Lytras Dimitrios, Kasimis Konstantinos, Chatziprodromidou Ioanna, Apostolou Thomas	
- « THE EFFECT OF EXERCISE TRAINING ON THE CARDIORESPIRATORY CAPACITY IN CHILDREN WITH CEREBRAL PALSY »	37
Kitixis Pavlos, Koutis Athanasios-Emmanouil, Kortianou Eleni	
- « DEVELOPMENT OF THE WATER-SHOT TEST AND RELIABILITY-VALIDITY INVESTIGATION IN YOUNG WATER POLO PLAYERS »	38
Tikas Georgios, Fitzios Stergios, Ioannou Chrysovalantis, Karabinis Vasileios, Paliouras Achilleas, Kapreli Eleni	
- « PHYSIOTHERAPEUTIC INTERVENTION USING VIRTUAL REALITY FOR FALL PREVENTION AND BALANCE IMPROVEMENT IN PATIENTS WITH MS. »	39-40
Theodora Bourtsou, Chalkia Anna, Tsigaras George, Hlias Kallistratos	
- « VULVODYNIA: CROSS- CULTURAL ADAPTATION OF VULVODYNIA EXPERIENCE QUESTIONNAIRE AND DEVELOPMENT OF AN ADVISORY LEAFLET »	41
Sarampali Marianna, Skoura Anastasia, Papanikolaou Dimitra Tania, Lampropoulou Sophia, Trachani Eutuxia, Billis Evdokia	
- « COMPARISON OF SPINAL MANIPULATION AND SHAM MANIPULATION WITH THE ADDITION OF ARTIFICIAL SOUND IN THE LUMBAR SPINE ON NON-SPECIFIC LOW BACK PAIN PATIENTS »	42
Bekas Georgios, Paris Iakovidis, Lytras Dimitrios, Kasimis Konstantinos, Chatziprodromidou Ioanna, Apostolou Thomas	
- RECORDING OF INJURIES AND INVESTIGATION OF FACTORS RELATED TO HIGH LEVELS OF KINESIOPHOBIA IN BASKETBALL ATHLETES	43
Liaskos Eleftherios, Iakovidis Paris, Lytras Dimitrios,, Kasimis Konstantinos, Chatziprodromidou Ioanna, Apostolou Thomas	
- « THE EFFECT OF THE COMBINATION OF SOFT TISSUE MOBILIZATION TECHNIQUES AND THERAPEUTIC MASSAGE OF THE STERNOCLEIDOMASTOID MUSCLE IN ADULTS WITH CHRONIC NECK PAIN. »	44
Siouta Maria, Iakovidis Paris, Lytras Dimitrios, Kasimis Konstantinos, Chatziprodromidou Ioanna, Apostolou Thomas	
- « EXPLORING THE DIAGNOSTIC EXPERIENCE OF PATIENTS WITH CHRONIC LOW BACK PAIN: A QUALITATIVE STUDY »	45
Zafeiropoulou Theologia, Paris Iakovidis, Lytras Dimitrios, Kasimis Konstantinos, Chatziprodromidou Ioanna, Apostolou Thomas	

- « CROSS-CULTURAL ADAPTATION FOR FREEZING OF GAIT'S QUESTIONNAIRE ON PARKINSON'S PATIENTS IN GREEK LANGUAGE »	46-47
Giannouli Anna, Ignjatovic Anja, Tsekoura Maria, Matzaroglou Charalampos, Lampropoulou Sofia	
- « CROSS-CULTURAL VALIDATION OF THE SCALES FOR OUTCOMES IN PARKINSON'S DISEASE- PSYCHOSOCIAL FUNCTIONS IN GREEK POPULATION »	48
Karava Eirini, Moutzouri Maria, Sakellari Vasiliki, Christakou Anna	
- « THE EFFECT OF HIPPO THERAPY ON PEOPLE WITH MULTIPLE SCLEROSIS, A SYSTEMATIC REVIEW »	49
Giannou Ioannis, Katsina Margarita, Besios Thomas	
- « THE EFFECTS OF A FUNCTIONAL STRETCHING PROGRAM BASED ON THE PILATES METHOD ON THORACOLUMBAR RANGE OF MOTION AND SUBJECTIVE SENSE OF CHANGE IN HEALTHY ADULTS »	50
Matsikidou Sofia, Iakovidis Paris, Lytras Dimitrios, Kasimis Konstantinos, Chatziprodromidou Ioanna, Apostolou Thomas	
- « THE EFFECTIVENESS OF PHYSICAL THERAPY INTERVENTIONS IN PATIENTS WITH ATAXIA: A SYSTEMATIC REVIEW »	51
Koukoudaki Stylianil, Kyriakopoulou Angeliki, Besios Thomas	
- « EFFECT OF PREOPERATIVE EXERCISE IN PATIENTS UNDERGOING TOTAL KNEE ARTHROPLASTY-REVIEW »	52
Kentrou Evangelia, Vernardos Astrinos, StergiouTheofanis, Tomais Phoivos, Papathanasiou Georgios	
- « THE THERAPEUTIC EFFECT OF ELECTROSTIMULATION WITH THE EXOPULSE MOLLII SUIT IN POST-STROKE PATIENTS: A PILOT STUDY »	53-54
Selfo Ornisa, Katsamagka Eleni, Dimitriadis Zacharias, Paras George, Chalkia Anna, Besios Thomas	
- « THE ROLE OF EXERCISE IN “ROTATOR CUFF RELATED SHOULDER PAIN” RCRSP. A SYSTEMATIC REVIEW »	55
Georgios Kypraios, Aikaterini P. Sivrika, Demetris Lamnisos, Konstantinos Papadopoulos, Dimitrios Stasinopoulos	
- « THE EFFECT OF TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) ON THE FUNCTIONAL ABILITY OF THE UPPER LIMB IN POST-STROKE PATIENTS: A DOUBLE-BLIND, RANDOMIZED SHAM-CONTROLLED TRIAL »	56-57
Katsamagka Eleni, Ornisa Selfo, Dimitriadis Zacharias, Chandolias Konstantinos, Lampropoulou Sofia, Kalogirou George, Thomas Besios	
- « THE EFFECTIVENESS OF A PILATES PROGRAM IN THE IMPROVEMENT OF STATIC AND DYNAMIC BALANCE IN PATIENTS WITH MULTIPLE SCLEROSIS »	58
Tatsi Aikaterini, Papakosta Eirini, Provata Despoina-Nefeli, Xergia Sofia, Lampropoulou Sofia	
- « UNETHICAL PRACTICES IN THE CLINICAL PRACTICE OF PHYSIOTHERAPY DUE TO INCREASED WORKLOAD »	59
Antoniadou Styliani, Tsiligos Athanasios-Christos	
- « CROSS-CULTURAL ADAPTATION OF SELF-ESTIMATED FUNCTIONAL INABILITY QUESTIONNAIRE IN DANCERS WITH CHRONIC PAIN »	60
Kioupi Stefania, Kratimenou Vasiliki, Karadoulamas Sotiris, Paliouras Achilleas, Bilika Paraskevi, Kapreli Eleni	
- « VIRTUAL-REALITY BASED REHABILITATION OF BALANCE IN PARKINSON'S DISEASE. LITERATURE REVIEW »	61-62
Papalampropoulou Venetia, Trachani Eftychia	
- « GAMIFICATION AND VIRTUAL REALITY IN PHYSICAL THERAPY FOR PATIENTS WITH MUSCULOSKELETAL DISORDERS OF THE LOWER LIMBS-REVIEW »	63
Kentrou Evangelia, Tsagera Sofia, Markesinis Lamprinos-Marios, Papathanasiou Georgios	
- « PELVIC FLOOR MUSCLE TRAINING AND ITS BENEFITS FOR MULTIPLE SCLEROSIS PATIENTS SUFFERING FROM URINARY INCONTINENCE AND SEXUAL DYSFUNCTION »	64-65
Vaia Sapouna, Sofia Thanopoulou, Dimitrios Papriakas, Styliani Papakosta, Maria Sakopoulou, Dimitrios Zachariou, Athanasios Zikopoulos, Aris Kaltsas, Nikolaos Vrachnis, Dionysios Vrachnis, Nikolaos Sofikitis, Athanasios Zachariou	
- « CROSS-CULTURAL ADAPTATION IN THE GREEK LANGUAGE OF THE PATIENT SATISFACTION QUESTIONNAIRE »	66
Kapakli Androniki, Mavronasou Aspasia, Trigkas, Kallistratos Ilias, Kortianou Eleni	
- « THE APPLICATION OF CURRENT TECHNOLOGICAL MEANS IN THE PHYSICAL THERAPY REHABILITATION OF LOWER LIMBS FOR STROKE PATIENTS-REVIEW »	67
Kentrou Evangelia, Andreou Eftychia, Krokidis Ioannis, Sakellari Vasiliki	
- « DYSMENORRHEA: SYMPTOM RECORDING AND CROSS-CULTURAL ADAPTATION OF THE MENSTRUAL DISTRESS QUESTIONNAIRE (MEDI-Q) IN GREEK »	68
Katra Labrini, Kontogeorgopoulou Varvara, Skoura Anastasia, Papanikolaou Dimitra Tania, Billis Evdokia	

«GRIP STRENGTH - FUNCTIONAL REACH TEST: CORELLATION IN OSTEOPENIC WOMEN»

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ABSTRACT (348 λέξεις)

Introduction

The main reasons for the decline in functionality are the losses of static/dynamic balance and muscle strength/power (1). Balance disorders are considered a contributing factor to falls, and it is recommended to assess balance with objective tests to prevent falls (2). The Functional Reach Test (FRT) is a clinical measure of balance capability (3). However, lower extremity muscle strength (LEMS) is necessary to maintain stance stability (4). The LEMS was found to be significantly related to grip strength, suggesting that it could be used as an overall strength capability index for clinical screening (1, 4).

Purpose

This cross-sectional study aims to investigate the relationship between grip strength and FRT in osteopenic women.

Materials and Methods

63 osteopenic women aged >45 were included in the present study. All participants were asked to perform the FRT parallel to a fixed-on-the-wall tape measure, using their desired upper extremity by making a fist with their shoulder in 90-degree flexion. They reach forward as far as they can without raising their heels, and referencing the 3rd metacarpal; the difference between the starting and end-point was recorded in cm (3). The grip strength of the dominant (DGS) and non-dominant (N-dGS) hand was measured using the hydraulic hand dynamometer Saehan© (S/No. 022463). The correlations between participants' age, T-score, DGS, N-dGS and FRT were examined using the Pearson's r correlation index. Statistical analysis and plot production was performed using SPSS v.29.00 and R-studio with the significance level set to 0.05.

Results

The values (mean±SD) of the examined variables were: age: 68.09 ±9.05 years, T-score: -1.73 ±0.61,

FRT: 22.08 ±9.3cm, DGS: 58.64 ± 14.57lb and N-dGS: 54.71 ± 13.27 lb. FRT was found to have a moderate negative correlation with age ($r=-.47$, $p<0.001$), and a moderate positive correlation with both DGS and N-dGS ($r=.43$, $p<0.001$, $r=.46$, $p<0.001$ respectively). There was no statistically significant correlation between FRT and T-score ($r=-.14$, $p=.25$).

Conclusions

The present study findings indicate that FRT have a moderate correlation with hand grip strength in osteopenic women. However, further research is necessary on this topic.

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Key Words: Balance, Muscle strength, Correlation, Osteopenia

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"The effect of neuromuscular exercise on balance in patients with knee osteoarthritis: A Pilot Study"

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The present work is a thesis of a postgraduate program.

SUMMARY

Introduction: Osteoarthritis of the knee (OAG), also known as degenerative joint disease, is usually the result of wear and tear and progressive loss of articular cartilage (Hunter et al., 2019). Based on the literature, the latest guidelines recommend non-pharmacological, pharmaceutical and surgical interventions. In the non-pharmaceutical approach the cornerstone is the provision of physiotherapy. Several systematic reviews have demonstrated evidence that regular exercise of various types is effective in people with OAG.

The aim of this study is to investigate the effect of neuromuscular exercise on balance in people with OAG.

Methods. A total of 45 subjects were recruited for this study. Of these subjects, 9 subjects 5 males and 4 females with a mean age of 56 years (46-68 years) participated and completed the study. These subjects were divided into two groups: a group in which a neuromuscular exercise program was applied and a group with a strengthening exercise program. Participants were assessed with three balance assessment tests : Time up and go, Berg Balance Scale and MinibestTest, before and after the intervention.

Statistical Analysis: Data analysis was performed using the IBM SPSS Statistics 27 statistical package. Initially, normality test was performed using Shapiro-Wilk as the sample size in each case did not exceed $n=50$. The data followed a normal distribution, therefore parametric tests were used for statistical analysis. Specifically, the analysis was performed using the T-Test and because there were dependent samples, the Paired Samples t-test was used, as a comparison of the performance of our research participants before and after the intervention was made. Finally, the level of significance (p) was set at 0.05.

Results: In the first group there was a statistically significant difference after the intervention in Time Up and Go test ($p=0.045$) and Berg Balance Scale ($p=0.025$) and in MiniBestest test there was no marginally but statistically significant difference. In the group that followed the empowerment program there was no statistically significant difference in Time Up and Go test and Berg Balance Scale and finally in Mini Bestest test after the intervention there was a statistically significant difference ($p=0.016$).

Conclusions: After the program intervention it was observed that the first group with the neuromuscular exercises program had overall more improvement in balance than the strengthening exercises group. Based on the results of this study, it is recommended to conduct a research study on the contribution of neuromuscular exercise to balance improvement in people with OAG with a larger sample of patients and a longer intervention period in order to confirm our results in a general population and to obtain more results.

Key words: knee osteoarthritis, balance, neuromuscular exercise, knee strengthening exercises.

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« The effect of magnetic stimulator application in the treatment of calcific tendinitis of the shoulder »

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ABSTRACT

Introduction

Tendinitis is the most common musculoskeletal disease and patients suffering from calcified tendinitis have chronic shoulder pain and disability. Calcified shoulder tendinitis is the calcification and degeneration of the tendon near the insertion of the rotator cuff. The most common anatomical location is in the supraspinatus tendon. The clinical manifestation results in shoulder pain with decreased range of motion with limitation that interferes with daily activities. General conservative treatments include NSAID treatment, rest, physiotherapy, low-intensity shock waves, ultrasound, ultrasound-guided needle wash, needle barbotage and steroid injections.

Purpose

The aim of this study is to evaluate the effectiveness of the application of magnetic stimulation in the treatment of calcific tendinitis of the shoulder.

Materials and Methods

For the application of conservative treatment of calcification of shoulder tendinitis, we used a TESLA Stym FMS (functional magnetic stimulation) device produced by Iskra Medical. To evaluate this device we applied magnetic field to 11 patients in different stages of calcified shoulder tendinitis. A circular magnetic coil was placed over the affected area, generating rapidly alternating magnetic fields in the underlying tissue. The dosage and frequency of administration was 45Hz at 3 sec intervals with intensities ranging from 22% to 70% and duration of 25 min sessions, three times a week.

Results

One of the most important advantages of this magnetic field treatment is that it is non-invasive, painless, transmitted to the targeted area without direct contact with the skin and does not require the removal of clothing. Ten FMS stym sessions resulted in significant improvement in symptom severity and positively impacted the treatment of shoulder tendinitis.

Conclusions

Functional magnetic stimulation provides good results for many health issues, including tendonitis and shoulder calcification. Our findings support the therapeutic effect of using this medical device with excellent short-term results, and in tendon tissue engineering it has great potential

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<https://doi.org/10.3390/ijerph19105837>

Key Words:

Tendonitis, shoulder tendonitis, calcific tendonitis, magnetic stimulator

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«CROSS-CULTURAL ADAPTATION, RELIABILITY AND VALIDITY OF THE GREEK VERSION OF THE SPORTS SCORE QUESTIONNAIRE IN ATHLETES WITH VARIOUS SHOULDER PATHOLOGIES»

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ABSTRACT

Introduction

The shoulder is considered one of the most complex joints and its injury is common in athletes who participate in sports where the upper extremity is actively involved (1). These injuries may affect the athlete's performance and efficiency. Therefore, it was deemed necessary to cross-culturally adapt the Subjective Patient Outcome for Return to Sports score (SPORTS) in Greek, a questionnaire that assesses the ability of athletes to return to their preinjury levels in their sport (2).

Purpose

The aim of the present study was the cross-cultural adaptation of the Greek version of SPORTS, as well as the evaluation of its reliability and validity.

Materials and Methods

Participants were 65 athletes of Greek origin, aged 18-40 years, diagnosed with shoulder pathology in the last decade. The Greek version of the SPORTS was created through an appropriate cross-cultural adaptation process (3). Its validity was tested in relation to the Shoulder Pain and Disability Index – Greece (SPADI-GR) questionnaire, that assesses pain and disability resulting from shoulder pathologies (4). Reliability testing was performed with repeated administration of the questionnaires after 2 weeks. The sample was collected according to the eligibility criteria from athletes of the Hellenic Supreme Council of Military Sports (ASAED). Statistical analyses were performed using SPSS Statistics v.29.

Results

Excellent face validity was observed. A rather high ceiling effect of 35.4% (> 15%) was detected. A high level of construct validity was documented compared to SPADI-GR, as a very strong and

negative correlation (Spearman's rho) was found between SPORTS and SPADI scores ($r = -0.909$, $p < 0.001$), and with its Pain ($r = -0.844$, $p < 0.001$) and Disability subscales ($r = -0.903$, $p < 0.001$), as well as with patients' age ($r = 0.259$, $p = 0.038$). Finally, the reliability level (ICC = 0.978) was excellent, with no significant systematic error (SEM = 0.09).

Conclusions

The Greek version of SPORTS is considered a valid and reliable tool. A challenge for further study is to evaluate the return to sport of athletes with pathologies in other joints of the body.

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Key Words: cross cultural adaptation, validity, reliability, SPORTS.

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The effectiveness of Respiratory training as a preventive strategy to cognitive decline: A Systematic Review

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Abstract

Introduction: Cognitive decline is characterized by difficulties in memory, learning, keeping focused or decision making, which all affect everyday life. It is mostly found among geriatric population. Recent studies have shown a positive effect of respiratory training in cognition. This has been attributed to the activation of areas in brain that are mostly related with memory, such as cortex, hippocampus and amygdala.

Aim: The aim of this research study was to investigate the effect of respiratory muscle training on cognition and cognitive decline

Methods: A systematic literature search was performed for randomized controlled trials (RCTs) in the electronic databases Google Scholar, PubMed, Scopus, CENTRAL and Pedro. The search involved screening for studies examining that implemented RMT and examined cognitive function in different populations. The PEDro (Physiotherapy Evidence Database) scale was chosen as the tool to assess the quality of studies. A meta-analysis was performed where possible.

Results: Four studies were included in this systematic review. The two involved elderly population with increased blood pressure, one included post covid patients and one COPD patients. Most studies presented low methodological quality. Only one study did

present statically significant difference among groups in certain cognitive functions.

Conclusions: Although the implementation of respiratory muscle training programs seems promising in improving cognitive function and possible preventive dementia, further research, is needed.

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Key words: *respiratory training, cognitive function, dementia*

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(Part of PhD thesis)

«Offloading of chronic neurotrophic osteoarthropathy Charcot foot, using customized insole orthotics, beyond acute phase. Single case study»

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Introduction

Charcot's disease [1] is difficult to diagnose, with minimal research focus on patient management in the post-acute phase [2]. The main complication of Charcot foot with a rocker bottom deformity is the development of a diabetic ulcer, due to the development of maximum plantar pressures (MPP) at the site of the deformity [3], which can lead to major amputations with significant psycho-socio-economic costs [4,5]. The construction of a specially designed orthotic insole (OI) appears to play a significant role in relieving pressure on the MPPs, however without a description of a standardized protocol for its construction.

Aim

Study of the MPPs in a case of Charcot foot, using a mat pressure recording system as well as in-shoe pressure analysis system for the construction of an orthotic insole with the aid of Computer-Aided Manufacturing- Computer-Aided Design (CAD-CAM).

Materials and Methods

Evaluation of the effectiveness of the offloading caused by the OI through free walking tests in a straight line, walking in a circular direction, ascending and descending stairs, and walking on a treadmill. Additionally, the effect of the OI on the patient's balance ability was studied.

Results

The assessment and construction protocol for OI with the aforementioned systems led to significantly relieving of the MPPs on the Charcot foot, reducing pressures by up to 700%, while also improving the patient's balance ability.

Conclusions

The improvements observed may contribute to the reduction of the incidence of diabetic ulcers as well as their associated complications. The above

measurements for the construction of OI should be applied to a larger sample of patients with Charcot foot.

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Key Words: Charcot Neurotrophic Osteoarthropathy, Off-loading, Plantar Pressure, Customized insoles, Balance Assessment

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This study is the product of a Postgraduate Research, MSc Thesis.

«Bilateral arm training versus constraint induced movement therapy for improving upper limb motor function and dexterity after stroke, A systematic review»

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Abstract

Introduction

Among many treatments to improve motor function and dexterity of the hemiplegic upper limb (UL) after a stroke are bilateral exercise (BAT) and restrictive motor therapy (CIMT).

Purpose

The present study, conducted as part of a postgraduate thesis, aims to compare the effectiveness of the two methods on the motor function and skill of AA after stroke.

Materials and Methods

Systematic review of randomized control trial in the electronic databases Pubmed, PEDro, Science direct and Medline from 01/01/2000 to 31/12/2022 in English, with keywords defined by PICO (Population, Intervention, Comparison, Outcome) and MeSH terms. Quality assessment was performed using the Cochrane risk of bias 2 (RoB2) tool for RCTs. Data were extracted in terms of outcome measures for motor function, activities of daily living and dexterity.

Results

After searching the databases 20827 articles were collected, by removing duplicates and checking the inclusion and exclusion criteria for full article screening there were 134 studies and from these finally 5 studies were included in the systematic review. Total sample consisted of 198 participants, of which 138 patients (3 studies) were in the chronic stage, 30 patients (1 study) in the subacute stage and 30 patients (1 study) in the acute stage. The duration of the therapeutic intervention ranged from 3 to 4 weeks. When controlling for bias, two studies were classified as "low risk" and three as "high risk". Significant improvement was seen in motor function with both the application of CIMT and BAT. Moderate evidence was found for the

superiority of BAT over CIMT in improving proximal UL movement disorders. Also with moderate evidence, more effective was found for CIMT over BAT in activities of daily living. Finally, regarding the dexterity, the results were contradictory as far as the superiority of BAT compared to CIMT was concerned.

Conclusions

The lack of evidence regarding the superiority of either intervention alongside the positive effects of both on UL motor function and dexterity highlights both equally for UL retraining after stroke. Future systematic investigations may include motor assessment and meta-analysis.

Key words: stroke, hemiplegia, bimanual exercise, constraint induced movement therapy, motor function

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“THE RESPIRATORY PHYSICAL THERAPY ON CHILDHOOD BRONCHIAL ASTHMA TREATMENT: A CASE STUDY.”

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ABSTRACT

Introduction

Bronchial Asthma is a frequent disease in children and young adults, characterized by airway obstruction caused by bronchial hyperresponsiveness. The condition can be cured with the use of bronchodilators or can be healed naturally, by applying Respiratory Physical Therapy (PT) in both cases.

Purpose

The purpose of this study is to evaluate the effect of respiratory physical therapy, through the training of nasal and diaphragmatic breathing through activities.

Materials and Methods

A 5-year-old boy of Greek origin was treated with Respiratory PT, to reduce symptoms of Bronchial Asthma. Evaluation measurements were carried out before and after the end of the physiotherapeutic Intervention. Questionnaires were used to check asthma exacerbation and body posture, spirometry was performed to estimate pulmonary volumes and capacities, abdomen and chest circumference were also measured during inhalation and exhalation phases. 24 sessions, lasting 60 minutes each, were performed over 8 weeks, through training diaphragmatic and controlled nasal breathing, Relaxation Techniques. The child and caregiver were trained to apply these techniques at home in self-treatment form

Results

Forced Expiratory Volume (FEV) and Peak Expiratory Flow Rate reduced; Forced Vital Capacity slightly increased after treatment, however spirometry are not considered as statistically significant ($p>0.1$). Abdominal breathing circumference while inhaling, increased by 9.75% (mobility of diaphragm increased). Asthma symptom control improved and fatigue during activity reduced.

Conclusions

Respiratory PT focused on Diaphragmatic Breathing Training, when combined with breathing exercises performed at home, contributes to overall improvement of asthma symptoms. However, research should be conducted in a larger population sample to consolidate findings on the effectiveness of Respiratory Physical Therapy.

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KeyWords:

Case Study, Respiratory Physical Therapy, Child Bronchial Asthma, Diaphragmatic Breathing, Buteyko Nasal Breathing

This research was developed in the "Pediatric Physiotherapy" Master's Program framework.

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I consent to telephone communication and/or communication by e-mail regarding for the conference obligations.

Physiotherapy as a Key to Enhancing the Psychosocial Development of Children with Autism and ADHD

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Introduction

Physiotherapy is often associated with improving mobility and physical fitness. However, recent studies highlight its significant role in managing psychosocial conditions in children with neurodevelopmental disorders such as autism and ADHD. This research approaches physiotherapy as a central tool for improving mental health, incorporating techniques that focus not only on the body but also on the psychological well-being and social adaptability of children.

Objective

This doctoral research aims to evaluate the effectiveness of a tailored physiotherapy protocol in reducing symptoms of anxiety, stress, and depression and improving the mental well-being and social integration of children with autism and ADHD.

Materials and Methods

A total of 117 children aged 6-18 years with diagnosed neurodevelopmental disorders participated in the study, all of whom were followed at the Child Psychiatry Department of Ippokrateio Hospital. Of these, 64 participated in an intervention consisting of 10 physiotherapy sessions, while 53 formed the control group. The intervention protocol included diaphragmatic breathing, auricular neuromodulation, Jacobson relaxation exercises, and pressure therapy. CAST, DASS-21, and ADHD-RS questionnaires were used to assess the children's mental state before and after the intervention.

Results

The Paired-sample T-test revealed statistically significant findings ($p < 0.05$) regarding the impact of physiotherapy on the mental health and behavior of children with neurodevelopmental disorders. A significant reduction was observed in autism spectrum behaviors (1.56 points, $p = 0.023$), inattention ($p = 0.000$), hyperactivity ($p = 0.004$), and impulsivity ($p = 0.019$). Stress, anxiety, and depression were also significantly reduced ($p = 0.000$), confirming the positive effect of the intervention.

Conclusions

The findings suggest that physiotherapy intervention can be key to improving the mental health and social integration of children with neurodevelopmental disorders, offering a holistic support model that goes beyond physical health and contributes to enhancing their quality of life.

Keywords: Mental health, auricular acupuncture, physiotherapy

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«CENTRAL NERVOUS SYSTEM ADAPTATIONS IN PATIENTS WITH CHRONIC ANKLE INSTABILITY»

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ABSTRACT

Introduction

This review focuses on the presentation of adaptations of the central nervous system in patients with lateral ankle instability. First, it analyzes key points of fundamental functions of the central nervous system, presents information about specific methods for detecting changes in it and forms an update on chronic ankle instability caused by lateral ankle sprain. Moreover, it is established that those adaptations in supraspinal neural structures are related with persistent disfunction of the ankle and recurrent sprains. In addition, all the research findings related to structural and functional alterations in the brain and cerebellum were gathered and analyzed minutely (3). Finally, the necessity of future evidence – based research is emphasized, as well as the setup of rehabilitation programs not recognizing chronic ankle disability as a musculoskeletal disorder, and the appropriate imaging method for future research is identified.

Purpose

The main purpose of this review is to present recent findings that support brain adaptations in the central nervous system in individuals with chronic ankle instability, as well as to discuss strategies for improving rehabilitation approaches for these patients and future research in this field..

Materials and Methods

This thesis is based on a literature review of scientific articles and academic books that support the findings of the relevant studies. The main search gates were PubMed, Google Scholar, Science Direct, Medline, and Scopus. The selected studies investigated structural and functional adaptations in the CNS of patients with functional ankle instability, where participants met the inclusion criteria according to the International

Ankle Consortium. The measurements were made using Transcranial Magnetic Stimulation (TMS), Electroencephalogram (EEG), Magnetic Resonance Imaging (MRI) and functional Magnetic Resonance Imaging (fMRI), in both intervention and control groups.

Results

16 articles were selected from which structural and functional adaptations in the CNS were identified in the intervention groups, compared to the control groups. There were also positive correlations with specific self-reported questionnaires regarding functional ankle instability.

Conclusions

Structural and functional neural modifications in these patients require further investigation, with fMRI being the most suitable method (1), and lead to additional rehabilitation approaches, such as biofeedback (2).

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Key Words: Chronic ankle instability, neuroplasticity, rehabilitation.

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Enhancing lymphedema management through exercise

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Key words: Lymphedema, exercise, compression garment, swimming

Introduction: In the past, the importance of exercise for patients with lymphedema was questionable. Recently, its significant value has been proven.

Purpose: The purpose is to present recent bibliographic data that demonstrate the importance of exercise in managing lymphedema.

Material and method: A review of recent literature from PubMed and Scopus databases were studied.

Results: The benefits of exercise are maintaining full range of motion of the affected joints and improving mood, always, with guidance for safety and not to aggravate the patient's condition. The use of compression garment is essential regardless of the type of exercise. Recommended types of exercise are therapeutic, aerobic, progressive resistance and swimming. Therapeutic exercise is performed by a specially trained therapist with gentle, energetic, localized and repetitive exercises. Aerobic exercise includes walking and light running, where the activation of large muscle groups, the maintenance of a proper weight, the development of endurance and strength, and the proper functioning of the circulatory and lymphatic systems are achieved. Progressive resistance exercise can be done using elastic bands. The hydrostatic pressure and resistance of the water during swimming has a therapeutic effect because the aquatic environment provides better control of movements.

Conclusions: Exercise is a critical component in the management of lymphedema. Each type of exercise offers unique benefits. Future research should continue to explore optimal exercise protocols.

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Title: “The effect of shock waves on different stages of plantar fasciitis: A critical review through comparative studies”

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Introduction: The term “shock waves” refers to a set of mechanical pulses that as a wave extend through the body. Its mechanism is proposed to promote bone healing, treat bone necrosis and heal tendons. Plantar fasciitis is one of the common causes of heel pain in the general population. Its pathogenesis is not fully understood, but is generally considered to be related to repeated microtrauma to the plantar aponeurosis and specifically in the medial tuberosity of the heel.

Purpose: The purpose of the critical review is to investigate the importance of shock waves in the treatment of various stages of plantar fasciitis. At the same time, a comparative study will be carried out between the use of other therapeutic means and exercise in relation to the implementation of shock waves.

Material and Method: Medline, Pubmed, Springer, Elsevier and Hindawi databases were searched for randomized controlled trials. The assessment was performed using the Pedro scale. The main researched parameters were pain intensity, ankle joint mobility and thickness of plantar aponeurosis. Due to heterogeneity of the studies, no post – analysis was performed.

Results: Through seven randomized controlled trials with 594 patients with chronic symptoms of plantar fasciitis, it was observed that there was a statistically significant reduction in pain and improvement in mobility in the plantar aponeurosis. Most therapeutic means were not superior to shock waves primarily in terms of pain and the thickness of aponeurosis.

Conclusions: Shock waves can be used both to combat the intensity of pain and to improve the mobility of the ankle joint mainly with accompaniment of collateral therapeutic methods such as the use of orthoses, low laser therapy and stretching exercises.

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Key Words: Shock waves, plantar fasciitis, comparative study

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“EFFECT OF PHYSIOTHERAPY’S METHODS AND TECHNIQUES IN TEMPOROMANDIBULAR JOINT DISORDERS”

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Key – words: temporomandibular joint disorder, physiotherapy, effect, methods

Temporomandibular joint disorders are a total referring to a number of relevant disorders that affect the temporomandibular joints, the chewing muscles and the relevant structures with common symptoms pain and limited mouth opening. 60 – 70% of the population mentions just one sign of such disorder, but only the 5% of them seeks for treatment. Taking all of these into consideration, this senior thesis was made to answer the question if and how much the techniques and physical means that physiotherapy is using can contribute to dealing with the symptoms of the temporomandibular joint disorders. This assignment consists of a detailed review of the anatomy, biomechanisms, pathology and other evidence regarding to the temporomandibular joint. Also, a review of the bibliography is included, with the analysis of 15 scientific articles of the last fifteen years, which were chosen after a research in online databases (Pubmed, Google Scholar, PEDro). This review concluded that despite the complexity and distinctiveness of the joint, the physiotherapeutic methods and techniques, such as electrotherapy, mobilization of tissues and joints, massage and acupuncture can help to deal with the patients with temporomandibular joint disorders with significantly positive outcomes. Although, this doesn't mean that a further research isn't appropriate.

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"Physiotherapeutic intervention using virtual reality for fall prevention and balance improvement in patients with MS."

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Abstract

Introduction

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS). It results from the immune system attack on the CNS, characterized by demyelinating lesions (plaques) created by the disease (1). MS can cause motor, sensory, and cognitive impairments (2). Motor impairments, such as balance and gait disorders, often lead to an increased risk of falls, affecting the quality of life of patients with MS (3). With advancements in science and technology, new tools have emerged that can be included in the "arsenal" of physiotherapists and used as intervention tools. Another one tool is considered to be virtual reality (VR). Virtual reality can significantly benefit balance in patients with MS and substantially reduce the risk of falls.

Aim: to investigate the effectiveness of virtual reality in preventing falls and improving balance in patients with MS.

Methodology: A search was conducted in the following databases: Scopus, Google Scholar, PubMed, and PEDro. A total of twelve (12) studies were included.

Results: Virtual reality, through controlled and adaptive environments, can provide

stimuli to the patient and promote the process of motor learning, improving balance ability and preventing falls in patients with MS.

Conclusion: Virtual reality appears to be a promising intervention tool for improving balance, reducing the risk of falls, and enhancing the quality of life in patients with MS.

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Keywords: Virtual reality, multiple sclerosis, balance, risk of falls.

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«MUSIC AND MUSIC THERAPY DURING PHYSIOTHERAPY INTERVENTION IN INFANTS WITH PREMATURITY, DEVELOPMENTAL DISORDERS OR OTHER PROBLEMS: A LITERATURE REVIEW»

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ABSTRACT

Background

When perceived that an infant needs physiotherapy, the intervention starts either inside or outside the Neonatal Intensive Care Unit (NICU), which, in addition to positive effects, will cause some negative ones, such as increased stress and crying (Anderson & Patel, 2018). Bibliographically it is demonstrated that music therapy improves the clinical condition of infants with prematurity or other disorders, enhancing their vital signs and psychomotor development and reducing episodes of crying (Standley, 2014), while music therapy can also enhance physiotherapy with children (Marrades-Caballero et al., 2018).

Aim

The aim of the postgraduate thesis is to emphasize the use of music/music therapy during physiotherapy received by infants with prematurity, developmental disorders or other problems, inside or outside the NICU, in order to assist this very important, necessary, but often difficult process of physiotherapy in infants.

Material and Method

The clinical sample refers to infants with prematurity, developmental, respiratory or neuromusculoskeletal disorder, who receive physiotherapy combined with music/music therapy, inside or outside the NICU.

The literature review was carried out through search and evaluation of information sources on the topic during 1980-2022, development of conceptual frameworks and mind mapping, and compilation based on the findings obtained.

Results

By investigating the combination of the two interventions, a statistically significant positive effect was found on both bio-physiological functions and neuromotor development of infants. In addition, the combination of the two interventions resulted in a statistically significant reduction in stress response, sensation of repetitive pain, crying episodes and anxiety

experienced by infants, while minimizing their days in the NICU.

It also statically significantly increased children's level of enjoyment and parents' level of satisfaction and relief.

Conclusions

The positive findings point out the need for further research to substantiate the results, while this review is an important first step in relation to the promotion of useful techniques in the field of early intervention in the country.

It is expected that this will be the beginning of both deep dive and clinical application of music therapy techniques in infants, as well as upgrading of physiotherapy and music therapy.

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Key words: music therapy, physiotherapy, infants, early intervention, NICU

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«Bone Oedema in an after Covid-19 era: Observation Case Studies»

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ABSTRACT

Our field of study is the relationship between COVID-19 and bone oedema. In this article, we explore bone oedema in relation to COVID-19 and examine how physical therapy can play a vital role.

Introduction

Understanding Bone Oedema

Bone oedema is a condition characterized by the accumulation of excess fluid within the bone marrow. This can lead to inflammation inside the bone, resulting in pain and discomfort. It is typically detected through magnetic resonance imaging (MRI) scans.

Prevalence in Patients with COVID-19

Our observational study suggests that bone oedema may be more common in patients with COVID-19 than previously thought. While exact prevalence rates vary, our findings report an increase in cases of bone oedema among individuals who have recovered from COVID-19, with rates up to 70% higher compared to the pre-COVID era.

Purpose

The Role of Physical Therapy

1. **Pain Management**
Bone oedema can cause significant pain and discomfort. We addressed pain management through personalized treatment plans that included therapeutic exercises, ultrasound therapy, electrical stimulation, and laser sessions.
2. **Mobilization and Range of Motion**
Patients exhibited stiffness and limited range of motion in the affected bones. We designed individualized exercises aimed at improving joint mobility and flexibility, assisting patients in regaining their functional abilities.
3. **Strength and Balance Training**
Bone oedema weakens the surrounding muscles and affects balance. We developed strength and balance training programs to restore muscle function and reduce the risk of falls or injuries.

Materials and Methods

Materials: A total of 50 patients of both sexes, aged between 40 and 65 years.

Methods: An observational research approach was employed, as the incidence of patients with bone oedema has shown a rapid increase over the past two years compared to previous years.

Results

The relationship between COVID-19 and bone oedema is a complex area of study that continues to evolve. The benefits of physical therapy in the management of bone oedema are becoming increasingly significant.

Conclusions

For individuals experiencing bone oedema as an underlying consequence of COVID-19, seeking the expertise of a specialized physiotherapist may be a critical step in managing pain relief, improving functionality, and enhancing quality of life. As our understanding of COVID-19 and its effects on the human body continues to expand, physical therapy remains a valuable tool in the holistic approach to patient care and rehabilitation.

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DOI: 10.1007/s00256-023-04337-0

Key Words: Bone oedema, Covid-19, Physical a Therapy

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CROSS-CULTURAL TRANSLATION OF THE NORTH STAR AMBULATORY ASSESSMENT INTO GREEK

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ABSTRACT

Introduction

Duchenne muscular dystrophy (DMD) is a severe, sex-linked muscle degenerative disorder caused by mutations in the dystrophin gene located on the X chromosome. The prevalence of DMD is estimated to be less than 10 cases per 100,000 males. DMD results in a progressive loss of muscle tissue, which is replaced by fatty and fibrotic tissue, leading to impaired motor function. Early symptoms include difficulty climbing stairs, a waddling gait, and frequent falls (1). Therefore, it is crucial to use an appropriate clinical tool to assess the functional ability of boys with DMD for effective medical management. One of the most standardized and widely used tools to assess motor function in DMD is the North Star Ambulatory Assessment (NSAA) (2).

Purpose

To cross-culturally translate the second (2.1) English version of the NSAA manual and assessment worksheet into Greek, including the accompanying “observed family report worksheet”.

Material and Method

After receiving permission from developers to translate, the following steps were taken with their approval, following international recommendations and guidelines (3): (A) translation into Greek by two independent translators; (B) synthesis of the two translations; (C) back-translation of the synthesized version into English by a different translator; (D) comparison of the back-translation with the original English version by the developer of the assessment tool to identify any ambiguities or semantic and conceptual discrepancies; (E) if errors in meaning and content are found, the terms or expressions are re-translated and back-translated again until translational equivalence is achieved.

Results

During the cross-cultural translation, certain adjustments were made to ensure the proper syntax of sentences and the accurate wording of

terms and expressions. The back translation of the final Greek version of the NSAA was approved by the developers after incorporating suggested final corrections. The assessment tool is referred to in Greek as “Αξιολόγηση Νορθ Σταρ Περιπατητικών Ασθενών” (North Star Assessment of Ambulatory Patients).

Conclusions

The Greek version of the NSAA (v2.1) is now available for Greek clinical physiotherapists to utilize. The Greek material has been uploaded to the “NSAA” webpage of the “Physiotherapy Online Delivery Neuromuscular Disease (POD-NMD)” website at the following link: <https://www.pod-nmd.org/assessment/nsaa/>. The psychometric validation of the Greek NSAA will enable its use for research purposes.

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Key Words: cross-cultural translation; Duchenne muscular dystrophy; North Star Ambulatory Assessment.

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«TEST-RETEST RELIABILITY OF PELVIC FLOOR MUSCLES WITH A SPECIAL SENSOR»

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ABSTRACT

Introduction

Urinary incontinence refers to any involuntary loss of urine. Globally, 1 in 3 women experience incontinence and pelvic floor muscle (PFM) exercises are the first-line treatment for its management (1). However, for a PFM exercise to be effective, the contraction must be performed correctly (directed inwards and towards the navel). According to literature, there are pelvic devices (vaginal or surface ones) that assess, retrain, etc. the PFM, but they do not appear to record the direction of the PFM during contraction (2), which is considered important.

Purpose

The test-retest reliability of a surface sensor that records the direction of the PFM contraction across women with and without incontinence.

Materials and Methods

A small surface sensor was used, which connects via a cable to software (ArduinoIDE 2.2.2) on a computer. It was placed on the patient's perineum using elastic, adhesive, waterproof tape, with the patient in lithotomy position. A specific protocol of PFM exercises was performed, including slow and fast contractions as well as coughing (knack). Measurements were repeated for each patient on a different day (10days apart across measurements). For incontinence occurrence and severity the International Consultation Incontinence Questionnaire Short Form (ICIQ-UI-SF) was used. Reliability was performed with intraclass correlation coefficient (ICC) through SPSS.

Results

Ten women participated (4 with incontinence, 6 without), aged 35±16 years, with body mass index

(BMI) of 24.3 (normal weight individuals). Only 16.6% of ICC results were >0.3 (indicating moderate and strong reliability/correlation measurements), while the majority were <0.3 (reporting weak reliability/correlations). In contrast, qualitative analysis of the results, conducted through graphs revealed a satisfactory correlation between the measurements. Several factors, possibly responsible for this fluctuation was subject for discussion.

Conclusions

The surface sensor was characterized as comfortable and user-friendly by patients. Quantitative analysis yielded low reliability, in contrast to qualitative analysis through graphs, which showed satisfactory correlations. Therefore, the use of surface sensor is recommended only as a real-time PFM exercise tool and not as an outcome measure or assessment tool for research. Further research with larger samples and closer monitoring of all parameters which may compromise measurement consistency is required.

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Key Words: urinary incontinence, PFM training exercises, PFM training devices, reliability, superficial sensor, perineal sensor

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Cross-cultural adaptation of the Michigan Hand outcomes Questionnaire (MHQ)/Brief-MHQ in Greek and pilot study in hand pathologies

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Introduction: The Brief Michigan Hand Outcomes Questionnaire (Brief-MHQ) is a commonly used questionnaire for the assessment of hand extremity. The adaptation of this questionnaire in the Greek language will improve the evaluation of the hand.

Objective: The cross-cultural adaptation of Brief-MHQ in the Greek language and evaluation of the Greek version with application to patients with hand pathologies.

Material & Method: The adaptation and the test for its comprehensibility by patients will be conducted based on international guidelines. It will be checked for face validity and content validity based on the relevance of the questions with hand pathologies. Convergent validity will be examined by correlating the Brief-MHQ with the Quick Disabilities of the Arm, Shoulder and Hand (QuickDASH) and the VAS scale, internal consistency will be assessed with Cronbach's alpha coefficient and test-retest reliability by retaking the questionnaire 5-7 days after its initial completion.

Results: The Greek version of Brief-MHQ, was examined by a special committee for face validity and content validity. After the committee's approval, 10 patients with hand pathologies completed the questionnaire to check for any comprehension difficulties. Then it was tested in 43 patients, 25 men and 18 women and the results showed high convergent validity with the QuickDASH ($r=-0.787$, $p<0.001$) and moderate with the VAS ($r=-0.410$, $p<0.001$), high internal consistency ($\alpha=0.808$) and the test-retest reliability showed an excellent score ($ICC=0.97$, $p<0.001$).

Discussion: The results of this research seem to be in line with that of cross-cultural adaptations of the Brief-MHQ in other languages in which it has been successfully adapted.

Conclusion: The Greek version of the Brief-MHQ is a valid and reliable tool, capable of thoroughly evaluating the patient's hand. Further research is needed, with a larger sample and in patient samples with specific pathologies of the hand.

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Keywords: Hand assessment, PROMs, cross-cultural adaptation, MHQ, Brief-MHQ

«The effects of Cognitive Functional Therapy in people with chronic low back pain»

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ABSTRACT

Introduction

With more than 60 million years of life lived with disability in 2015, low back pain has become one of the leading causes of disability worldwide, representing a serious burden, both for individuals and for the healthcare system (1-3). Cognitive Functional Therapy (CFT) is a multidimensional, patient-centered intervention that directly addresses the physical, cognitive, psychological, and social factors of chronic pain (4-8). Numerous reviews highlight the lack of high-quality literature on the effectiveness of CFT (9-16).

Purpose

The objective of this study is to thoroughly investigate the effectiveness of CFT concerning pain, functionality, and kinesiophobia in managing chronic nonspecific low back pain (CNLBP).

Materials and Methods

A randomized controlled clinical trial was conducted with 52 adult participants with CNLBP, divided into two experimental groups: Group A (CFT) and Group B (exercise program). The therapeutic programs lasted for 4 months and included four scheduled assessments (before, midway, post-intervention, and a follow-up 4 months later). The measured parameters were pain intensity (SF-MPQ), functionality (RDQ), and kinesiophobia (FABQ).

Results

The CFT group showed statistically significant improvements across all scales at both evaluation points, while the exercise group showed significant improvements in the SF-MGP and RDQ scales post-intervention, with no significant changes observed in the FABQPA scale. SF-MGQ, RDQ and FABQPA showed statistically significant

differences between the two groups at both post-intervention and follow-up.

Conclusions

CFT demonstrated significantly greater improvements in pain, disability and kinesiophobia compared to the exercise group, with these benefits persisting in the long-term, highlighting the benefits of its focus on cognitive reframing, functional training, and lifestyle modifications.

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Key Words: chronic pain; cognitive functional therapy; low back pain; neuropathic pain; physiotherapy.

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Machine learning applications and sarcopenia

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Abstract

Introduction

Sarcopenia is a progressive disease characterized by a significant decline in muscle mass, muscle strength, and physical performance, primarily affecting older adults (1). It is closely associated with several serious health issues, including functional impairment, increased risk of falls, physical disability, fractures, higher rates of hospitalization, elevated mortality, decreased quality of life and it also imposes a substantial economic burden on the healthcare system (2,3). Despite the rapid developments in medicine and technology in the last years, the specific mechanism behind sarcopenia is still not explained. The use of predictive models to unravel hidden patterns in the collected data will help clinicians in early detection of sarcopenia and in better management of the diseased people. Machine learning (ML) can be defined as a method that can recognize patterns and relationships in various types of data. ML is rooted in the ability to learn from data provided by the researcher and copies some aspects of human cognition (4)

Aim

The objective of this scoping review was to investigate the variety of Machine Learning (ML) methods and their ability to detect individuals at risk of or suffering from sarcopenia.

Materials and methods

Pubmed databases were searched from July to August 2024 for trials related to the sarcopenia prognosis and artificial intelligence. The key words used were “sarcopenia”, “artificial intelligence”, “machine learning”, “risk factors”.

Results

11 studies were included involving 15.799 participants. All studies were able to identify sarcopenia with moderate to high accuracy values and with different ML methods. The machine learning methods that standout were, deep neural networks, LightGBM, Decision Tree, CAT, k-nearest neighbors. As for the risk factors it is found that the most important were age, body mass index, waist circumference, chronic diseases and some socioeconomic features like, the average monthly household income, the housing type and the marriage status.

Conclusion

Machine learning methods have the ability to extract valuable insights from data enabling accurate predictions for the early detection of sarcopenia. These results indicate that ML methods can be used by health professionals for faster and time saving methods to identify sarcopenia.

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Keywords: sarcopenia, machine learning, artificial intelligence, risk factors

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This work was carried out as part of my doctoral thesis.

«DYSpareunia: SYMPTOM MAPPING IN FEMALES»

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ABSTRACT

Introduction

Female sexual function, and especially dysfunction, remains a taboo topic, leading women to neglect their symptoms. One common sexual dysfunction is dyspareunia, a multifactorial disorder where a woman experiences pain before, during, or even after sexual intercourse (1). It often coexists with other dysfunctions, making its diagnosis and treatment quite complex.

Purpose

The aim of the present study is to record the frequency of dyspareunia symptoms in the female Greek population.

Materials and Methods

The sample-based research study was grounded on the Female Sexual Function Index (FSFI_Gr) (2), a valid self-reported questionnaire standardized in Greek, including 19 questions, that assess 6 domains of sexual dysfunction (desire, arousal, lubrication, orgasm, satisfaction, pain/discomfort). The questionnaire was distributed to a sample of 208 women (ages 17-62), both at the University of Patras and via social networks. Statistical analysis of the results was performed using IBM SPSS Statistics (Version 28.0).

Results

The average FSFI_Gr score was 26.2 ± 8.0 , indicating moderate sexual function, with scores below 26.55 suggesting dysfunction. In the pain subscale, the sample scored an average of 4.42 ± 1.9 , with 10.6% of women (22 out of 208) exhibiting symptoms of dyspareunia (score < 3.8).

Pearson's correlation test showed a negative correlation between age and sexual desire.

Conclusions

The study highlighted the importance of women's sexual health, revealing that dyspareunia is a common issue, with 10.6% of participants showing symptoms. Additionally, the Female Sexual Function Index indicated slightly reduced sexual function in the general population of the study.

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Key Words: Dyspareunia, Pelvic floor, Female sexual dysfunction, Female Sexual Function Index.

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« Reliability of 4 Different Examiners for the Assessment of Forward Head Posture Using Photogrammetry in University Students»

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ABSTRACT

Introduction

Photogrammetry is a widely used method for assessing posture, especially forward head posture, which is often associated with an increased risk of musculoskeletal issues.

The aim of this study was to investigate the reliability of four independent examiners in evaluating forward head posture using photogrammetry.

Purpose

The purpose of the present study was to investigate the reliability of four independent examiners in assessing forward head posture using photogrammetry.

Materials and Methods

Thirty university students (aged 20-25) participated in the study. The four examiners placed reference markers on the participants' bodies and took photographs using mobile phones to assess swayback posture. The photographs were digitally processed, and the examiners calculated the posture angles, which were used for data analysis

Results

The reliability analysis between the examiners showed excellent agreement (ICC = 0.98) across all three indicators (Single_raters_absolute ICC1, Single_random_raters ICC2, and Single_fixed_raters ICC3), indicating outstanding reliability in the assessment of forward head posture using photogrammetry, beyond any randomness.

Conclusions

This study confirms that the use of photogrammetry for assessing swayback posture is highly reliable when performed by trained examiners. The results support the use of this method in clinical and research settings for monitoring body posture.

References

4. Inter and Intra-Rater Reliability of Measuring Photometric Craniovertebral Angle Using a Cloud-Based Video Communication Platform.: Cote, R., et al. (2021), Telerehabil. 2021;13(1):e6346.
5. Sensitivity of clinical assessments of sagittal head posture. Gadotti, I et al. (2010), Journal of Evaluation in Clinical Practice
6. Measurement of craniovertebral angle with Electronic Head Posture Instrument: Criterion validity Lau, H. M. et al. The Journal of Rehabilitation Research and Development

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Key Words.:Photogrammetry, Forward head posture, soft tissue

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«Reliability of 4 Different Examiners for the Assessment of Swayback Posture Using Photogrammetry in University Students»

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ABSTRACT

Introduction

Photogrammetry is a widely used method for assessing body posture, and swayback posture is often associated with an increased risk of musculoskeletal disorders. The aim of this study was to investigate the reliability of four independent examiners in evaluating swayback posture using photogrammetry.

Purpose

The purpose of the present study was to investigate the reliability of four independent examiners in assessing relaxed posture using photogrammetry.

Materials and Methods

Thirty university students (aged 20-25) participated in the study. The four examiners placed reference markers on the participants' bodies and took photographs using mobile phones to assess swayback posture. The photographs were digitally processed, and the examiners calculated the posture angles, which were used for data analysis

Results

The reliability analysis between the examiners showed perfect agreement (ICC = 0.99) across all three indicators (Single_raters_absolute ICC1, Single_random_raters ICC2, and Single_fixed_raters ICC3), indicating excellent reliability in the assessment of swayback posture using photogrammetry, beyond any randomness.

Conclusions

This study confirms that the use of photogrammetry for assessing swayback posture is highly reliable when performed by trained examiners. The results support the use of this method in clinical and research settings for monitoring body posture.

- 1 Inter and Intra-Rater Reliability of Measuring Photometric Craniovertebral Angle Using a Cloud-Based Video Communication Platform.: Cote, R., et al. (2021), Telerehabil. 2021;13(1):e6346.
- 2 Sensitivity of clinical assessments of sagittal head posture. Gadotti, I et al. (2010), Journal of Evaluation in Clinical Practice
- 3 Measurement of craniovertebral angle with Electronic Head Posture Instrument: Criterion validity Lau, H. M. et al. The Journal of Rehabilitation Research and Development

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Λέξεις κλειδιά: Photogrammetry,
soft tissue, sway back posture

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«The effects of the application of the ERGON IASTM technique on local and remote points of the spiral myofascial line in improving the functionality of patients with iliotibial band friction.»

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ABSTRACT

Introduction

According to Myers, the human body is controlled by twelve (12) different myofascial lines, which, both individually and in combination, can influence its functionality and provide a holistic approach to the treatment of various syndromes. One of these syndromes, iliotibial band friction syndrome (ITBS), has been attributed to pathological adaptations of the spiral line (SL), although this hypothesis has not been scientifically validated.

Objective

This study aims to examine the effectiveness of the ERGON IASTM technique and stretching exercises applied to both local and remote points of the SL in the treatment of iliotibial band friction syndrome (ITBS).

Participants and Methodology

Thirty athletes, who have been active for at least the last three (3) years (26.5 ± 4.5 years old, height: 173 ± 13 cm, weight: 75.5 ± 10.5 kg), were divided into two equal research groups. Group A (N=15) received treatment with ERGON IASTM and stretching exercises applied to remote points of the SL, while Group B (N=15) received treatment locally, on the iliotibial band area, on the dominant lower limb. All participants received one treatment per week for six (6) consecutive weeks, with evaluations before and after each treatment. The following parameters were evaluated: a) pain intensity using the Numeric Rating Scale (NRS), and b) the range of motion of the hip (HROM = Hip's Range of Motion) and knee (KROM = Knee's Range of Motion) using a goniometer.

Results

The combined application of the ERGON IASTM soft tissue mobilization techniques and stretching exercises in Group A resulted in a significant improvement in range of motion and functionality compared to Group B. Group B, however, showed slightly better results in pain reduction.

Conclusions

The application of ERGON IASTM soft tissue techniques both to remote points and to the pathological area of the iliotibial band can improve functionality and reduce pain in patients with ITBS. Further research is necessary to validate the energy transfer mechanism along the myofascial lines of the body.

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Key Words: soft tissue, iliotibial band syndrome, spiral line, fascia

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«NEUROMUSCULAR PREDICTORS OF PERFORMANCE IN THE MODIFIED ATHLETIC SHOULDER TEST IN SWIMMERS»

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ABSTRACT

Introduction

The modified Athletic Shoulder Test (mASH) is an innovative upper extremity assessment tool suitable for replicating shoulder muscle contraction in sports involving repetitive overhead movements such as swimming (1). However, the neuromuscular factors associated with mASH test performance have not yet been elucidated.

Purpose

The present study aimed to identify neuromuscular predictors of mASH performance in swimming athletes.

Materials and Methods

Eighteen (18) healthy swimmers (13-17 years old) underwent a holistic musculoskeletal assessment during the pre-season period, which included: the mASH test, the assessment of isometric strength of the internal rotators (IR) and external rotators (ER) of the shoulder with a handheld dynamometer, the Closed Kinetic Chain Upper Extremity Stability (CKCUES) test to assess shoulder stability, the Biering-Sorensen test to assess back muscle endurance, the Shoulder Endurance Test (SET) to assess the endurance of shoulder external rotators, the Posterior Endurance Shoulder Test (PSET) to assess the endurance of the trapezius muscles, as well as the range of motion of shoulder external rotation. The variables that had a significant correlation ($p < 0.05$) were included in the stepwise multiple regression models.

Results

In the full abduction position (180 degrees) in the mASH test, the regression model included only the

strength of the IR (Adjusted R-Square (Adj.R^2) 0,532, $p=0,000$) on the left and the strength of the IR along with CKCUES (Adj.R^2 0,55 $p < 0.05$) on the right. At 135 degrees in mASH test, the model involved only ER strength (Adj.R^2 0,406 $p=0,003$) on the left and IR strength along with trapezius endurance on the right (Adj.R^2 0,63, $p < 0,05$). In the 90-degree position in the mASH test, the model included the strength of the IR on the left (Adj.R^2 0,336, $p=0.007$) and on the right hand respectively (Adj.R^2 0,519, $p=0,000$).

Conclusions

IR and ER strength, shoulder stability, and trapezius muscle endurance contribute to mASH test performance, with IR strength being the most dominant factor. Exercises that strengthen these muscle groups may positively contribute to mASH test performance.

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Key Words: strength, functional screening, swimmer's shoulder

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“The Effectiveness of Joint Mobilization as a Monotherapy in the Management of Knee Osteoarthritis: A Systematic Review”

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Introduction

Osteoarthritis is a progressively degenerative disease that affects the joints, most commonly the knee and is primarily characterized by chronic pain and a decline in functional ability (1). Knee osteoarthritis (KOA) has a very high prevalence, which is expected to dramatically increase worldwide in the coming years. This fact makes the management of KOA a pressing issue (1). Joint mobilization contributes to the management of KOA symptoms; however, its effectiveness as a monotherapy has not been fully clarified.

Aim

The aim of this study, conducted as part of Ioannou Olga's thesis, was to examine the effectiveness of joint mobilisation techniques as a single intervention in the context of Orthopaedic Manual Therapy (OMT) and non-invasive management of knee osteoarthritis.

Material and Methods

The conduct of the thesis was based on the PRISMA guide (2). The PubMed, PEDro and Scopus databases were examined thoroughly in order to provide the literature background for this review. All selected articles were of a research nature and in these articles the effect of a variety of joint mobilization techniques, as an exclusive treatment method, in a population diagnosed with osteoarthritis of the knee was examined. The methodological quality of the included studies was assessed according to the PEDro 11-point rating scale.

Results

Following methodological review, 15 studies were included in the review, comprising a total sample of 564 subjects. Joint mobilization techniques were found to be safe and had multiple positive impacts on patients with KOA. The superiority of joint mobilization over other

techniques was evident in terms of pain relief and improved functionality, although no long-term maintenance of effects was observed.

Conclusions

Mobilization of the tibiofemoral, patellofemoral, and hip joints, when applied appropriately and with suitable dosage, can positively influence the primary symptoms of mild to moderate knee osteoarthritis. Clinicians are therefore encouraged to use these techniques, either individually or as part of a comprehensive treatment program.

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Key Words: Knee Osteoarthritis, Manual Therapy, Mobilization, Manipulation

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«THE EFFECT OF EXERCISE TRAINING ON THE CARDIORESPIRATORY CAPACITY IN CHILDREN WITH CEREBRAL PALSY»

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ABSTRACT

Introduction

In the last decade, one of the greater health challenges facing society is the increasing number of people living with neurological disorders. Many children, adolescents and adults with cerebral palsy (CP) have reduced cardiorespiratory endurance, muscle strength and rarely participate in any form of physical activity.

Purpose

This study aimed to investigate the effect of regular exercise training on the physical capacity of children with CP.

Materials and Methods

An online search was performed in MEDLINE (via PubMed), Scopus (via Elsevier) and EBSCO databases, using as keywords "cerebral palsy", "physical activity", "training" and "cardiorespiratory" without a time limit by two independent researchers. In summary, the inclusion criteria were studies (a) randomized controlled trials (RCTs), (b) involving children with CP under 18 years of age, (c) with intervention programs focusing on improving physical capacity (such as aerobic and resistance training), and (d) only published in English. Studies were excluded if a) outcome and assessment measures were unrelated to cardiorespiratory parameters, and b) the FITT (frequency, intensity, time, type) protocol parameters were not used. The quality assessment of each study was performed using the 10-point PEDro scale.

Results

509 published studies were identified, 7 of which were included and assessed as high or moderate quality (mean score: 6.5/10). In the included studies, participants exercised at least two to four times per week, for at least 20 minutes and at a moderate intensity of approximately 60% to

75% of maximum heart rate (HRmax) or 40% to 80% of heart rate reserve (HRR).

Statistically significant improvements were observed in functional capacity (in 4 out of 7), oxygen consumption (in 1 out of 7) and anaerobic capacity (in 1 out of 7).

Conclusions

Although the positive effects of exercise training on physiological and functional outcomes in children with cerebral palsy (CP) are well established, ongoing research continues to explore its broader benefits. Future studies should implement more rigorous methodological designs to improve the validity and generalizability of findings, addressing limitations related to sample size, blinding, and allocation procedures.

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Key Words: exercise, training, cardiorespiratory capacity, cerebral palsy

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«DEVELOPMENT OF THE WATER-SHOT TEST AND RELIABILITY-VALIDITY INVESTIGATION IN YOUNG WATER POLO PLAYERS»

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ABSTRACT

Introduction

Water polo is a demanding sport involving repetitive overhead throwing and simultaneous floating effort, which increases the frequency of injuries (1). Thus, the identification of modifiable factors at early stages seems to be vital in preventing and effectively managing the most common injuries, the majority of which affect the shoulder complex (2). However, current literature does not provide any valid and reliable testing options to enable assessment of water polo players in the swimming pool.

Purpose

To develop Water-Shot Test (WST), a new functional assessment test for young water polo players and investigate its psychometric properties.

Materials and Methods

13 young water polo athletes aged 10-18 years, both males and females participated in the study. The Water-Shot Test was conducted in the pool using 2- or 3-kilogram medicine balls, following a standardised testing procedure. In order to capture the throw a tripod and a smartphone (Apple iPhone 12) were used, while the throwing distance was analysed with the KINOVEA app. The intra-rater and inter-rater reliability were evaluated. For criterion validity, the correlation between WST and rotator musculature dynamometry (internal rotation-IR and external rotation-ER) as well as the seated Single-Arm Shot-Put Test (SASPT) was investigated. Statistical analysis was performed using the SPSS (v29.0) software.

Results

Intra-rater reliability was found to be excellent for both examiners, with intraclass correlation coefficient (ICC) scores to be 0.886-0.983 for the

first examiner and 0.909-0.935 for the second. The inter-examiner reliability was equally high (ICC: 0.996-0.999). Excellent reliability was also ensured by the low scores the indices smallest detectable difference (SDD) and standard error of measurement (SEM). Criterion validity was examined using the Pearson Correlation Coefficient, which displayed strong correlations between WST and all the IR, ER and SASPT ($r = 0.788 - 0.916$, $p < 0.05$).

Conclusions

The Water-Shot Test appears to be a valid and reliable assessment tool for evaluating the shoulder complex in young water polo athletes inside the water environment.

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Key Words: Water -Shot Test, water polo, functional assessment, validity, reliability

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"Physiotherapeutic intervention using virtual reality for fall prevention and balance improvement in patients with MS."

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Abstract

Introduction

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS). It results from the immune system attack on the CNS, characterized by demyelinating lesions (plaques) created by the disease (1). MS can cause motor, sensory, and cognitive impairments (2). Motor impairments, such as balance and gait disorders, often lead to an increased risk of falls, affecting the quality of life of patients with MS (3). With advancements in science and technology, new tools have emerged that can be included in the "arsenal" of physiotherapists and used as intervention tools. Another one tool is considered to be virtual reality (VR). Virtual reality can significantly benefit balance in patients with MS and substantially reduce the risk of falls.

Aim: to investigate the effectiveness of virtual reality in preventing falls and improving balance in patients with MS.

Methodology: A search was conducted in the following databases: Scopus, Google Scholar, PubMed, and PEDro. A total of twelve (12) studies were included.

Results: Virtual reality, through controlled and adaptive environments, can provide

stimuli to the patient and promote the process of motor learning, improving balance ability and preventing falls in patients with MS.

Conclusion: Virtual reality appears to be a promising intervention tool for improving balance, reducing the risk of falls, and enhancing the quality of life in patients with MS.

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Keywords: Virtual reality, multiple sclerosis, balance, risk of falls.

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« VULVODYNIA: CROSS- CULTURAL ADAPTATION OF VULVODYNIA EXPERIENCE QUESTIONNAIRE AND DEVELOPMENT OF AN ADVISORY LEAFLET»

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ABSTRACT

Introduction

Vulvodynia is defined as pain in the vulvar area for a continuous period of 3 months or more and is currently considered to be of unknown etiology. This condition affects women at a rate of 8-12%, dramatically changing their everyday lives¹. It causes severe chronic pain in the vulvar area, which may be generalized or localized, and may or may not be induced. Patients describe the pain as burning, sharp and with intense irritation of the area². Although vulvodynia is a serious pathology, research around it remains limited, and the available assessment tools are few and not sufficiently documented.

Purpose

Aim of this study was the cross- cultural adaptation of Vulvodynia Experience Questionnaire (VEQ) in Greek and the creation of an informative leaflet related to the condition.

Materials and Methods

This study involved the cross-cultural adaptation of the VEQ in Greek. The process required a forward translation conducted by two independent translators and then the synthesis of the questionnaire was created. Then it was back-translated by a third translator and the prefinal model of VEQ was developed. Finally, a pilot test was conducted, after which the final model of Greek VEQ (VEQ_Greek) was developed. To create the leaflet, a thorough literature review was conducted on the related field, consulting valid sources, such as PubMed, Google Scholar etc. with related keywords, followed by a discussion among researchers on the modules to be included.

Results

The translation process of the questionnaire was successfully completed and the Greek version of VEQ (VEQ_Greek) was created. Additionally, an advisory three-fold leaflet was created, containing information about the definition, diagnosis, symptoms and treatment of vulvodynia. It was then distributed into various medical settings, to inform the general population.

Conclusions

The study proposes a reliable tool for evaluating the severity of vulvodynia, translated into Greek and ready for use by clinicians/researchers. Additionally, it offers a valuable advisory to the scientific community that contributes to information and awareness of the general population about vulvodynia and its physical therapy management.

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Key Words: vulvodynia , pelvic pain, pain management

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This work is the product of an undergraduate thesis.

“Comparison of Spinal Manipulation and Sham Manipulation With The Addition Of Artificial Sound In The Lumbar Spine On Non-Specific Low Back Pain Patients”

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Introduction

Non-specific low back pain is one of the most common causes of musculoskeletal pain, affecting millions globally. In the coming decades its prevalence is expected to rise (1). Spinal manipulation is a common therapeutic approach for NSLBP, aiming at reducing pain and improving functionality. During spinal manipulations, an audible “pop” is produced and is often seen as an indicator of a successful treatment though the current evidence does not support this notion (2). Although many studies have compared SMT with Sham manipulations, most of them conclude that Sham manipulations produce poorer outcomes, though a few have reported similar results with SMT. Despite numerous studies on this audible sound, no research yet has investigated the impact of adding an artificial “pop” sound to sham manipulation.

Aim

The purpose of this study was to compare spinal manipulation with sham manipulation, while also examining the effect of an artificial “pop” sound in patients with NSLBP. The study was conducted as part of the thesis work of Georgios Bekas, student of the Physiotherapy Department at the International Hellenic University.

Material and Methods

10 adult participants with NSLBP were randomised into two groups. The Manipulation group (n=5) received SMT, while the Sham group (n=5) received sham manipulation with the addition of artificial sound. Pain intensity was measured using the Numerical Pain Rating Scale (NPRS) and Pressure Pain Threshold with an algometer before and after the intervention. Additionally, a tape measure was used to gauge the range motion of the lumbar spine. A Repeated Measures ANOVA and post-hoc tests were used to analyse the differences between the groups at each time point. Statistical significance was set at $p < 0.05$.

Results

A statistically significant ($p=0.028$) reduction in pain (NPRS) was observed in the manipulation group, with an average decrease of 3.8 points after the intervention, compared to a 0.4 decrease in the sham manipulation group. Additionally, there was an increase in the left side PPT ($p=0.032$) for the manipulation group by 20.4, compared to 2.4 in the sham group. However, on the right side of PPT and range of motion the difference between the two groups was not statistically significant.

Conclusions

In conclusion, spinal manipulation appears to be an effective component in the treatment of non-specific low back pain. However, in our study, no statistically significant differences were found beyond pain reduction.

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Key Words: Non-specific low back pain, spinal manipulation, range of motion, treatment effectiveness.

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Recording of Injuries and Investigation of Factors Related to High Levels of Kinesiophobia in Basketball Athletes

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Introduction

Basketball is a popular team sport that involves jumping and physical contact between players, often leading to injuries. Fear of movement is a common consequence for athletes following an injury, which can hinder their smooth reintegration into the sport (1,2).

Aim

The purpose of this study was to document the factors that are directly or indirectly related to basketball injuries and how these factors affect the levels of kinesiophobia in athletes.

Material and Methods

Fifty-six basketball players with a history of injury participated in this observational study, conducted as part of the thesis by student Eleftherios Liaskos. Data were collected through an anonymous questionnaire, which recorded personal characteristics of the athletes as well as details of their injuries. Additionally, the athletes completed the Tampa Scale for Kinesiophobia. The effects of factors such as gender, age, playing position, injury severity, re-injury, years of experience in the sport, number of injuries, and time taken to return to the sport were examined in relation to kinesiophobia scores. Data were analyzed using T-Tests and One-Way ANOVA to assess the impact of the variables on kinesiophobia, along with correlation analysis through Pearson's coefficient. Statistical significance was set at $p < .05$.

Results

The majority of recorded injuries involved the lower limb (82.1%), with ankle sprains being the most common (25%). Most injuries occurred due to inadequate warm-up and cool-down routines, during the middle of the season. Factors such as advanced age, high BMI, prolonged time away from the sport, and re-injury were associated with higher levels of kinesiophobia.

Conclusions

The findings suggest that older athletes or those with a high BMI are more prone to developing kinesiophobia. Proper cool-down and warm-up routines are critical for preventing re-injuries, while psychological support, especially for athletes with prolonged absences, helps reduce fear and build confidence. Targeted reintegration programs can improve performance and reduce the risk of new injuries.

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Keywords: Kinesiophobia, Injuries, Rehabilitation, Basketball

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“The Effect of the Combination of Soft Tissue Mobilization Techniques and Therapeutic Massage of the Sternocleidomastoid Muscle in Adults with Chronic Neck Pain.”

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Introduction

Chronic neck pain (CNP) is a common disorder that significantly affects the quality of life in adults (1). Therapeutic massage and soft tissue mobilization techniques (STMT) are widely used physiotherapeutic methods for managing neck pain. The sternocleidomastoid muscle plays a crucial role in the production of symptoms and is often implicated in the manifestation of pain and reduced functional capacity in the neck region (2,3).

Aim

The aim of this study was to investigate the effect of a combined protocol, which included therapeutic massage and STMT for the sternocleidomastoid muscle, on reducing pain and improving the functional capacity of individuals with CNP.

Material and Methods

A clinical study was conducted as part of the undergraduate thesis of student Maria Siouta. Thirty adults with CNP were randomly divided into three groups. The first group (combined protocol group) received therapeutic massage and STMT on the sternocleidomastoid muscle, while the second group (massage group) received only therapeutic massage. The third group (control group) received no treatment. Participants received four sessions over a two-week period. Pain was assessed using the Visual Analogue Scale (VAS), and functional capacity was measured using the Neck Disability Index (NDI) before and after the intervention. Data were analyzed using two-factor analysis of variance with repeated measures, and post-hoc tests were conducted to identify differences between groups at each time point. Statistical significance was set at $p < .05$.

Results

The analysis revealed statistically significant improvements in both pain and functional capacity in the two intervention groups compared to the control group at the second-

week measurement. However, the improvement was more pronounced in the group that followed the combined protocol. Specifically, statistically significant differences in both VAS and NDI scores at the second week were found only between the combined therapy group and the control group ($p < .05$).

Conclusions

The combined protocol proposed in this clinical study integrates the benefits of therapeutic massage with those of soft tissue mobilization techniques. For this reason, the combination is expected to be more effective than massage alone in improving pain and functional capacity in individuals with chronic neck pain.

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Key Words: chronic neck pain, therapeutic massage, soft tissue mobilization, sternocleidomastoid, functional capacity, pain.

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«EXPLORING THE DIAGNOSTIC EXPERIENCE OF PATIENTS WITH CHRONIC LOW BACK PAIN: A QUALITATIVE STUDY »

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Introduction

Low back pain is defined as the described pain in the anatomical area between the lower edge of the ribs and the gluteal folds (1). Based on the duration of its existence, it is classified as acute (<6 weeks), subacute (6-12 weeks), and chronic (>12 weeks). It is the primary contributor to disability worldwide. In most cases, the exact mechanism causing the pain cannot be identified (2). Patient experience is increasingly acknowledged as one of the three core pillars of healthcare quality, alongside clinical effectiveness and patient safety (3).

Purpose

The aim of this study is to explore the experiences of patients with chronic low back pain regarding the diagnostic procedures they have undergone through qualitative data analysis. The study was conducted as part of the thesis work of Zafeiropoulou Theologia, a student of the Physiotherapy Department at the International Hellenic University.

Materials and Methods

Three in-depth semi-structured interviews were conducted with patients suffering from chronic low back pain, focusing on their diagnostic experiences with healthcare providers. The qualitative data were analyzed according to the interpretative phenomenological analysis approach in qualitative research.

Results

The analysis revealed six clustered themes: (1) characteristics and consequences of chronic low back pain, (2) journey to diagnosis, (3) diagnostic experience, (4) positive diagnostic experiences, (5) negative diagnostic experiences, and (6) suggestions for optimizing the patient experience.

Conclusions

The participants experience daily pain with functional and psychological impacts. Each participant has followed a unique, long-term diagnostic path, reacts differently and attaches unique importance to the healthcare provider's diagnosis. Not all participants have received a final diagnosis for their pain. The analysis of positive and negative diagnostic experiences reveals that participants desire a more patient-centered approach from their healthcare providers. The healthcare providers mentioned are physiotherapists and physicians. It is recommended the topic be further investigated to derive generalized conclusions.

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Λ **Key Words:** low back pain, chronic pain, experience, diagnosis, qualitative study

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“Cross-Cultural Adaptation for Freezing of Gait’s Questionnaire on Parkinson’s patients in Greek language”

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Abstract

Introduction

Patients with Parkinson's, which is one of the most common degenerative neurological diseases, have frequent gait disturbances, difficulty in taking the first step and "freezing". The Freezing of Gait Questionnaire (FoGQ) is perhaps the only self-reported means of assessing this symptom, but it is not available in English.

Purpose

The present study conducted as part of a pre-graduate thesis aims at the cross-cultural adaptation of the Freezing of Gait Questionnaire in Greek and the pilot application of the final translated version in a group of Parkinson's patients in order to test comprehension and reliability.

Materials and Methods

After approval of the use of the questionnaire by the developers, a thorough process of adapting the questionnaire with forward translation, backwards translation and necessary modifications of the questionnaire in Greek was carried out. The understanding of the content was achieved

by distributing the questionnaire to a sample of Parkinson's patients after written consent. Inter-rater reliability was assessed by collecting responses to the questionnaire from two independent raters, and test-retest reliability was ensured by a second distribution of the questionnaire, after a 14-day period, to the same patients. The measurements were statistically analyzed with the intraclass correlation index (ICC), using the SPSS statistical package version 28.1.

Results

The translations were implemented without any particular difficulty and the pilot implementation demonstrated full understanding of the content of the translated questionnaire. Both inter-rater reliability (ICC=0.901, $p>0.001$) and inter-rater reliability (ICC=0.901, $p>0.001$) were found to be extremely high. The internal consistency index came out very high (cronbach's $\alpha = 0.835$).

Conclusions

The results of the present study suggest a tool that is easy to use, understandable by

patients and with high consistency and reliability both when used by different assessors and in repeated measurements. Testing in a larger sample of patients, further psychometric characteristics, such as validity, responsiveness and sensitivity, are deemed necessary before this questionnaire is widely given for use in the Greek clinical setting.

Key words: Parkinson's, gait freezing, intercultural adaptation

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“CROSS-CULTURAL VALIDATION OF THE SCALES FOR OUTCOMES IN PARKINSON’S DISEASE- PSYCHOSOCIAL FUNCTIONS IN GREEK POPULATION”

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Abstract

Introduction

Parkinson disease is consisted of mobility symptoms (e.g. lack of balance, neuromuscular co-ordination, walking ability, functional status, etc) and non-mobility symptoms (e.g. depression, sleep disorders, stress, etc). Non-mobility symptoms appear from the initial stages of the disease and can deteriorate as the disease develops. The treatment of the disease requires assessment and confrontation of non-mobility symptoms as well, which is crucial for the patient’s quality of life. The Scales for Outcomes in Parkinson Disease Psychosocial (SCOPA-PS) assesses the patients’ psychosocial status and predicts the appearance of psychosocial problems. It is a reliable and valid tool that can be used by the rehabilitation team for assessment of patients. It has been validated in several countries except from Greece.

Purpose

The cross-cultural validation of SCOPA-PS among Greek patients with Parkinson’s disease.

Material and Methods

The study was approved by the Ethics Approval Institution of UNIWA. Fifty-eight patients with Parkinson’s disease took part (M=71,4 years, SD=10,74,67,2% women, average duration of Parkinson’s disease 7,72 years). A SCOPA scale consists of 11 questions which measure one factor. We examined the internal consistency (Cronbach α), the reliability of repeated measurements (ICC), and the construct validity through the exploratory factorial analysis of the Greek version. The concurrent validity of the SCOPA-PS was checked with two valid and reliable Greek questionnaires: The Depression, Anxiety and Stress Scale-21 (DASS-21) and the Hospital Anxiety and Depression Scale (HADS).

Results

The initial structure of SCOPA Scales was supported through the analysis of the main components confirming one factor. The eigenvalues were from 0,16 to 4,85 with a total interpreted variability 44,09%, The factorial loadings of the questions were acceptable. The concurrent validity among the three instruments showed acceptable correlation indexes. The internal consistency reliability was acceptable (Cronbach α =0,86), while the reliability of repeated measurements was good (ICC=0,84).

Conclusions

The Greek version of SCOPA-PS showed appropriate psychometric characteristics and it can be used as a tool by the members of the rehabilitation team for clinical and research purposes.

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Keywords Parkinson disease, SCOPA-PS, validation, reliability, Greece

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The present study is an MSc thesis

«THE EFFECT OF HIPPO THERAPY ON PEOPLE WITH MULTIPLE SCLEROSIS, A SYSTEMATIC REVIEW»

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ABSTRACT (thesis, undergraduate level)

Introduction: It is a fact that Multiple Sclerosis is a neurodegenerative disease with severe symptoms that make everyday life of patients difficult as it progresses. There are several types of treatments aimed at limiting and delaying the onset of its symptoms. Hippotherapy being an innovative method of intervention, supported by several studies on its positive effects on various neurological disorders, is now under the microscope with the aim of testing its impact on the clinical picture and the functioning of people suffering from Multiple Sclerosis.

Purpose: The primary objective of this systematic review was to investigate randomized controlled trials related to the effect of equine therapy in people with Multiple Sclerosis.

Materials and Methods: For the needs of this systematic review, articles were extracted from the following databases: PubMed, Scopus, Cochrane Library, EBSCO. The following keywords were also used: multiple sclerosis, MS, hippotherapy, therapeutic horseback riding, therapeutic horseback ride, therapeutic horse ride, therapeutic horse riding, equine assisted therapy, equine therapy. Specific inclusion criteria were set for the selection of studies and specific exclusion criteria were set for the rejection of studies. The selection and rejection process were carried out separately by two examiners. The PEDro scale was used to check the quality of the studies included in this systematic review.

Results: To conduct the results from the 428 original studies 5 randomised controlled trials were finally analysed and evaluated. As a result, effects of hippotherapy were observed for several symptoms in people with MS, including impaired balance, fatigue, spasticity, pain, reduced quality of life, decreased muscle strength, difficulty walking, and poor endurance.

Conclusions: Hippotherapy appears to have effects as an intervention method on the clinical picture of people with MS. Of major importance, however, is to conduct future research into the field of hippotherapy in relation to MS in order to generate more valid, qualitative, research material.

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Key Words: Hippotherapy, Therapeutic riding, Multiple Sclerosis, Systematic Review

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"THE EFFECTS OF A FUNCTIONAL STRETCHING PROGRAM BASED ON THE PILATES METHOD ON THORACOLUMBAR RANGE OF MOTION AND SUBJECTIVE SENSE OF CHANGE IN HEALTHY ADULTS"

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Introduction

The Pilates method has established itself as a powerful tool for rehabilitation and integration into physiotherapy interventions. Therapeutic exercise is widely used for managing various conditions, improving mobility, strength, and quality of life (1). According to guidelines, it can also be applied preventively, even in healthy adults, to maintain mobility and overall physical health. Self-stretching exercises are an essential component of these programs, helping to restore normal range of motion (2).

Purpose

This study aims to investigate the effects of functional stretching, integrated into a structured Pilates program, on the range of motion of the thoracolumbar spine in healthy adults, as well as their subjective sense of change in functionality. This study was conducted as part of the thesis project of Matsikidou Sofia, a student of the Physiotherapy Department at the International Hellenic University (IHU).

Materials and Methods

The study involved 20 healthy adults who were randomly divided into two groups. Group A followed a program of functional stretches for the thoracolumbar spine, based on the Pilates method, under guidance and supervision. Group B performed a typical home exercise program without supervision. Both programs lasted for two weeks (6 sessions). Range of motion was assessed using a measuring tape, and lumbar spine performance was evaluated using the "Back Performance Scale (BPS)." Additionally, Group A was asked to report their subjective sense of change through the "Global Rating of Change" scale. The results were analyzed using the "two-way repeated measures ANOVA" method.

Results

Group A showed a statistically significant increase in thoracolumbar spine range of motion (flexion, extension, and lateral bending) and improved performance according to the BPS compared to Group B. Participants in Group A also reported a positive subjective sense of improvement in their functionality.

Conclusions

The functional stretching program, based on the principles of Pilates, significantly improved thoracolumbar mobility and performance, as well as participants' subjective sense of improvement. These findings highlight the value of Pilates not only for rehabilitation but also for maintaining spinal health in healthy adults.

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Key words: Pilates, functional stretching, therapeutic exercise, physical therapy, range of motion, functional capacity, thoracolumbar spine.

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«THE EFFECTIVENESS OF PHYSICAL THERAPY INTERVENTIONS IN PATIENTS WITH ATAXIA: A SYSTEMATIC REVIEW»

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ABSTRACT (thesis, undergraduate level)

Introduction: In recent years, the field of neuroscience has advanced significantly, as more individuals live with neurological disorders. Physical therapy interventions are a method under investigation and show potential for positive outcomes in patients with ataxia.

Purpose: The aim of this systematic review was to investigate randomized controlled trials on the effect of physiotherapy interventions in patients with ataxia.

Materials and Methods: An electronic search of the MEDLINE (via PubMed), Scopus (via Elsevier), Cochrane Database of Systematic Reviews and Physiotherapy Evidence Database (PEDro) databases was performed. The general search protocol included the keywords "ataxi*", "cerebellar", "Friedreich", "spinocerebellar ataxi*", "hereditary ataxi*", "exercise", "training", "intervention", "physiotherap*", "physical therapy", "rehab*" and "physical activity" by two independent researchers. In summary, the inclusion criteria included: a) only published randomised controlled trials (RCTs), b) only studies published in English, c) studies in which at least one group included a physiotherapy intervention, d) studies that used only people with diagnosed ataxia as a sample. Exclusion criteria were: a) pilot or cross-over studies, b) studies with participants having other neurological disorders, and c) studies that did not use an outcome measure assessment scale. The characteristics of the studies were evaluated using the 10-point PEDro scale.

Results: A total of 583 published studies were found, 12 of which were included and assessed as high, moderate, or low methodological quality (M.O.: 6.58/10). The results showed that physical therapy interventions such as aerobic exercise, balance programs, trunk stabilization or strengthening programs, neurorehabilitation programs, dual-task programs, Tai-chi, and exergame had mostly positive benefits (statistically or non-statistically) on the severity of ataxic symptoms.

Conclusions: The benefits of physical therapy interventions in patients with ataxia require further investigation, both in terms of methodological design control and limitations, to allow for safer generalization of the results.

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Key Words: Ataxia, exercise, physiotherapy, intervention

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«EFFECT OF PREOPERATIVE EXERCISE IN PATIENTS UNDERGOING TOTAL KNEE ARTHROPLASTY-REVIEW»

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ABSTRACT

Introduction

Total knee arthroplasty (TKA) is an effective treatment for severe knee osteoarthritis (Wirries et al., 2020). Preoperative exercise can increase muscle strength around the affected joints, enhance the patient's physical fitness, ease the transition to postoperative functional rehabilitation and decrease length of hospital stay (Liao et al., 2019).

Purpose

The aim of this review was to evaluate the effect of preoperative exercise on rehabilitation and quality of life in patients undergoing TKA.

Materials and Methods

A literature review was conducted to analyse systematic reviews and clinical studies from the PubMed and Scopus databases, examining the effect of preoperative exercise in patients undergoing TKA. No restrictions were imposed on data search.

Results

Patients who participated in preoperative exercise programs showed significant improvements in preoperative physical fitness, reduced pain levels, and faster recovery of functionality after surgery (Gränicher et al., 2020; An et al., 2021).

Conclusions

Preoperative exercise proves beneficial for patients undergoing TKA, enhancing recovery and improving outcomes. It is recommended to incorporate exercise programs into patient management prior to surgery for better recovery following TKA.

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Keywords: total knee arthroplasty, preoperative exercise, effect

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«The therapeutic effect of electrostimulation with the EXOPULSE Mollii suit in post-stroke patients: a pilot study»

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ABSTRACT

Introduction

Stroke patients have deficits in balance and mobility due to increased muscle tone (1,2). In recent decades, a novel approach to the management of spasticity based on the benefits of electrical stimulation has been developed (3). This is the Mollii method, or else the electrostimulation technique using the EXOPULSE Mollii suit (1,3). However, further research is needed to determine its efficacy, as the literature is scarce, and the evidence is inconclusive.

Purpose

The purpose of this study (which is the outcome of a master's thesis carried out within the context of the MSc Program "Advanced Physiotherapy") was to investigate the effect of electrical stimulation with the EXOPULSE Mollii suit on mobility, balance, and spasticity in patients with chronic stroke.

Materials and Methods

This research is a pilot study. A total of six patients, 3 men and 3 women (mean age 46.17 ± 6.61 years) with chronic stroke, were recruited in this study. Five one-hour sessions with the Mollii Suit were administered in the home setting, every other day. Participants were assessed before, during and after the intervention with the Modified Ashworth Scale (MAS) for spasticity, the Berg Balance Scale (BBS) for balance and the Timed-Up and Go test (TUG) and Tinetti Mobility Test (TMT) for mobility. Moreover, semi-structured interviews were held to record patients' experiences and perceived effects. Statistical analysis was performed using IBM SPSS Statistics software (Version 29).

Results

Results revealed statistically significant improvements in TUG ($p=0.011$) and BBS ($p=0.004$). A marginally significant difference was found in TMT Balance and TMT Gait ($p=0.05$). No change occurred in MAS in all muscle groups (elbow flexors: $p=0.097$, forearm pronators: $p=0.097$, wrist and finger flexors: $p=0.097$, hip adductors: $p=0.135$, knee extensors: $p=0.368$, plantar flexors: $p=0.223$). Perceived positive effects were reported, mainly related to an improvement in hemiplegic upper limb's muscle tone and movement, as well as an improvement in stability. No adverse effects were recorded. Therefore, research hypothesis $H0\alpha$ was accepted, while research hypotheses $H0\beta$ and $H0\gamma$ were rejected.

Conclusions

The Mollii method was shown to improve balance and mobility among individuals with chronic stroke and was perceived to have positive effects on hemiplegic upper limb's spasticity and movement, and stability. Nevertheless, findings suggest that future research with a larger sample size and a higher number of sessions be conducted to obtain more conclusive results.

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Key Words: exopulse mollii suit, electrostimulation, stroke, hemiplegia, spasticity

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«The role of exercise in “Rotator Cuff Related Shoulder Pain” RCRSP. A Systematic review»

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Introduction

Shoulder tendinopathy is a frequent pathology, with high impact on patient's general health and quality of life (1). The most recent term RCRSP constitutes an “umbrella definition” including a plethora of tendinal phenomena that focuses on the chronicity of the problem (2). RCRSP has a wide range of therapeutic approaches in which therapeutic exercise plays a dominant part (3). Due to high heterogeneity of the available exercises, there is a great debate among scientists about a “definitive” exercise protocol.

Purpose

The purpose of this review is to establish the effectiveness of exercise, in treating RCRSP, in order for setting a “Gold Standard” in the exercise protocol, with the possibility of implementing alternative forms of exercise like Clinical Pilates. This systematic review is part of a Doctoral Thesis by the first author titled “The role of Clinical Pilates versus exercise in the management of shoulder tendinopathies”

Methodology

Designing of this review was executed using the 27 item PRISMA 2020, (Preferred Reporting Items for Systematic Reviews and Meta-Analysis). An electronic search was performed from June 2023 till June 2024 using the PubMed, Scopus, ScienceDirect, Cinahl, PEDro and Google Scholar databases. The Mesh terms and keywords used were “tendinopathy”, “shoulder tendinopathy”, “RCRSP”, “exercise”, “load”, “resistance”, “Clinical Pilates” etc. These terms were combined with Boolean operators (OR, AND).

Results

Eight randomized clinical trials were included in the review. The duration of the intervention ranged from 6 to 26 weeks on groups ranging between 36 and 152 patients. Various forms of therapeutic exercise were studied. Open- closed chain exercises, strength exercises, high/low impact and load exercises, range of motion (ROM) exercises. All exercises had a positive result on pain management disability and increase of strength and endurance. No statistical or clinical differences were measured between the various forms of exercise, giving no definitive answer on one being more effective than the other

Conclusions

Exercise parameters are still an open field of debate. No statistical differences were measured concerning load, intensity, open/closed chain. Therefore, parametrization according to each patients clinical profile and needs is advised in order to achieve the best rehabilitation outcome.

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Keywords: Tendinopathies, RCRSP, pain, exercise, rehabilitation protocol.

«The effect of Transcranial Direct Current Stimulation (tDCS) on the functional ability of the upper limb in post-stroke patients: A double-blind, randomized sham-controlled trial»

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ABSTRACT

Introduction

Many post-stroke patients experience upper extremity (UE) dysfunction (1). Transcranial direct current stimulation (tDCS) is a novel, non-invasive method of brain stimulation that aids in the restoration/ recovery of UE function (2,3). However, there is conflicting evidence in the literature and conclusions regarding its effect are unclear(4).

Purpose

The aim of this research was to determine whether the application of bihemispheric tDCS, in combination with physical therapy and occupational therapy, has an effect on functional rehabilitation of the hemiplegic UE in patients with subacute stroke.

Materials and Methods

This is a double-blind randomized controlled trial. A total of 20 subjects with subacute stroke participated, 7 men and 13 women, aged 47-80 (mean age 71.9±8.8 years). Participants were randomly allocated to the intervention (n=10) and control group (n=10). The intervention group received active tDCS treatment (intensity 2mA), whereas the control group received sham treatment. The treatment lasted 20 minutes and was administered 5 times per week, for 2 weeks. Both groups received conventional physical therapy and occupational therapy. The assessment tools used were Fugl-Meyer (FMUE), Box and Block Test (BBT) and Barthel Index (BI - Activities of Daily Living - ADL).

Results

Results showed non-statistically significant differences between groups for all three assessment tools (FMUEtotal: p=0.67, FMUEul: p=0.93, FMUEwrist: p=0.64, FMUEhand: p=0.25, FMUEcoor/sp: p=0.24, BBTtotal: p=0.909, BBTaff:

p=0.087, BBTnon-aff: p=0.276, BI: p=0.067).

Therefore, the null hypothesis (H_0) was accepted and the alternative one (H_1) rejected.

Conclusions

tDCS was not superior to sham stimulation at any functional level. The intervention protocol followed appeared to have no additional effect in patients with subacute stroke. The research, however, encourages for future investigation of tDCS as a therapeutic supplement. Therefore, it is important, to conduct further research to clarify its effect on the functionality of capacity of UE in this population.

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Key Words: transcranial direct current stimulation, stroke, upper limb, hemiplegia, motor function

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This study is the outcome of a master's thesis carried out within the context of the MSc Program “Advanced Physiotherapy”.

«The effectiveness of a Pilates program in the improvement of static and dynamic balance in patients with Multiple Sclerosis»

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SUMMARY

Abstract

Multiple Sclerosis (MS) is a chronic, inflammatory, demyelinating disease of the central nervous system (CNS). MS leads to mobility, sensory, balance disorders and fatigue. Pilates seems to have an effect on the enhancement of postural control and dynamic balance.

Objective

The aim of this study is to assess the effectiveness of Pilates in the enhancement of static and dynamic balance, in comparison to a conventional therapy program and to a control group.

Methods

A total of 21 patients, participated in the study (10 male, 11 female averaging 58 ± 8 years of age), which were divided equally into two intervention groups (Pilates, conventional therapy) and the control group. Intervention programs consisted of 2 times per week sessions for a total of 8 weeks. Assessments were conducted before the start of the intervention program (baseline), in the middle of the intervention (4 weeks), at the end of the intervention (8 weeks) and one month later (follow up). The primary outcome measures were the static and dynamic balance. The evaluating tools, were consisted of, a stable force platform «Bertec Acquire 4», «Mini Balance Evaluation System Test » scale, « Functional Gait Assessment» scale and «Short Physical Performance Battery» scale. The secondary outcome measures include lower limb motor function «Fugl – Meyer Sensorimotor Assessment», fatigue «Fatigue Severity Scale».

Results

Standing time on force platform, with closed eyes and closed feet, significantly improved ($p < 0.05$). Balance during functional activities, as well as functional gait, showed statistically significant

improvement after the intervention ($p < 0.05$). Lower limb sensorimotor function was significantly improved as well ($p < 0.05$). Difference between the two groups was not statistically significant ($p > 0.05$), however, there was great improvement in the intervention group, in comparison to the control group.

Discussion – Conclusion

Results suggest that Pilates, improved the static and dynamic balance and lower limb mobility, however it does not surpass conventional therapy. In conclusion, further research is required in the future.

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Key Words: Multiple Sclerosis, Pilates, postural control, postural control, dynamic balance

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«UNETHICAL PRACTICES IN THE CLINICAL PRACTICE OF PHYSIOTHERAPY DUE TO INCREASED WORKLOAD»

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ABSTRACT

Introduction

Increased workloads and limited resources can cause stress, job exhaustion and reduced quality of care (1), (3). At the same time, difficult and specific goals, especially when linked to rewards, may prompt physiotherapists to disregard ethical norms in order to achieve their goals (2), (4).

Purpose

The purpose of this undergraduate research was to explore the relationship between increased workload and the occurrence of unethical practices in the field of physical therapy. Specifically, the research sought to examine the impact of increased work demands and challenging productivity goals on physiotherapists' behaviour and quality of service delivery.

Materials and Methods

The study conducted was non-experimental and non-randomized, as the participants were either physiotherapy students, physiotherapists or physiotherapist assistants who consented to participate in the study. Data was collected remotely using an electronic questionnaire formatted using Google Docs software, which was then sent to participants' email addresses. The data were analysed using IBM SPSS Statistics 29 software. Statistical methods such as Spearman's rho correlation coefficient, Mann-Whitney U Test, Kruskal-Wallis Test and Pearson Chi-Square Test were used for the analysis.

Results

The results from 115 questionnaires showed that there is a statistically significant correlation between quantitative workload and occupational exhaustion (Pearson Chi-Square Test: $\chi^2 = 6.597$, $p < 0.05$). At the same time, there is a moderate positive correlation between stress due to increased workload and the occurrence of unethical practices (Spearman's rho = 0.377, $p < 0.001$), while higher satisfaction with successful treatments is associated with lower levels of stress (Pearson Chi-Square Test: $\chi^2 = 15.885$, $p = 0.001$). Professional experience also influences the incidence of unethical practices (Kruskal-Wallis Test: $H = 22.036$, $p < 0.001$). No significant

differences were found in workload management ability between men and women (Mann-Whitney U Test: $U = 1601.000$, $p > 0.05$). On the other hand, the presence or absence of a formal treatment plan had no significant effect on unethical practices (Mann-Whitney U Test: $U = 1000.000$, $p > 0.05$), while it was shown that goal dependence on financial incentives was moderately positively correlated with unethical practices (Spearman's rho = 0.333, $p < 0.001$).

Conclusions

Therefore, according to the results of the study, proper management of work demands and support for practitioners are essential to maintain professional integrity and quality of service.

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Key Words: Ethical behavior, Workload, Productivity Goals, Burnout, Unethical Practices.

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«CROSS-CULTURAL ADAPTATION OF SELF-ESTIMATED FUNCTIONAL INABILITY QUESTIONNAIRE IN DANCERS WITH CHRONIC PAIN»

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ABSTRACT

Introduction

Chronic pain is a common issue among dancers, which can affect their quality of life and ability to meet the demands of their professional or amateur activity (1). Pain assessment is critical for providing appropriate treatment. However, there are no dance-specific assessment tools available in Greek, making the cross-cultural adaptation and validation of questionnaires like the Self-Estimated Functional Inability because of Pain (SEFIP) necessary (2).

Objective

This study aimed to adapt the SEFIP questionnaire into Greek and evaluate its reliability and validity in a sample of 64 dancers with chronic musculoskeletal pain.

Materials and Methods

Initially, permission to use the questionnaire was obtained from its creators. The adaptation into Greek was then conducted following international guidelines. A total of 64 dancers participated (95% female, mean age 30.27 ± 10.29). Inclusion criteria involved adult professional and amateur dancers with chronic pain (musculoskeletal pain lasting at least 3 months) who were able to read and communicate effectively in Greek. Individuals with cognitive disorders or pain not stemming from musculoskeletal disorders, cancer, neurological or rheumatological diseases were excluded from the study. The participants completed the SEFIP, the Oswestry Disability Index (ODI), and the Numeric Pain Rating Scale (NPRS). To assess reliability, 20 participants completed the questionnaires twice, 5-7 days apart, without receiving any treatment in between.

Results

The intraclass correlation coefficient (ICC) was

found to be excellent (ICC = 0.89). Cronbach's alpha was calculated at 0.616. For construct validity, the SEFIP was correlated with the ODI using Spearman's non-parametric correlation coefficient, as SEFIP values did not follow a normal distribution. A moderate, positive, and statistically significant correlation was observed between SEFIP and ODI ($r_s=0.531$, $p<0.05$), while a weak, positive, and statistically significant correlation ($r_s=0.372$, $p<0.05$) was noted between SEFIP and pain intensity (NPRS).

Conclusions

In summary, the SEFIP is a valid and reliable tool for assessing pain in dancers. However, further research is necessary to enhance the generalizability of the present study's findings.

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Key Words: dance, validity, reliability, pain, questionnaire

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*The current study is an undergraduate thesis.

**“VIRTUAL-REALITY BASED REHABILITATION OF BALANCE IN PARKINSON’S DISEASE.
LITERATURE REVIEW”**

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ABSTRACT

Introduction

Parkinson's disease (PD) is one of the most common neurodegenerative diseases and affects a significant proportion of the world population.(2) It is widely known that the majority of patients with PD cope with balance disorders, which can be improved by means of physiotherapeutic rehabilitation, conducted by various techniques.(1),(4). One newly introduced technique is the use of virtual reality (VR). VR is an innovation in the technological and scientific field and it is rapidly developing.(3) In recent years it seems to have been introduced in the field of patient rehabilitation, so it is necessary to study its application

Purpose

This review aims to investigate the use of VR as part of physiotherapeutic balance rehabilitation in patients with PD. It will present the various techniques, modalities, and specific means by which VR works and the way it is used as a physiotherapeutic tool in the rehabilitation of balance in patients with PD.

Materials and Methods

Methods: This study was carried out using academic literature and internet databases such as PubMed and Google Scholar. The studies selected were published between 2014-2024 in international scientific journals. The main intervention of the studies was the use of VR and only PD patients were involved. Studies that involved patients with pathological or other neurological diseases and in which no intervention was used, were rejected. A total of 12 studies using the above criteria were included.

Results

The balance assessments were performed by different means in each study. It was observed in 7 studies that VR had better results in the scores of the balance assessment instruments compared to other forms of physiotherapy. A similar improvement in balance between the virtual reality group and the comparison groups was found in 5 studies

Conclusions

Physiotherapy is considered a valuable method for improving balance and other symptoms in patients with PD. The use of VR as a means of

physiotherapy has even more positive effects on balance rehabilitation in this population group.

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Key Words: Parkinson's disease, Balance, Virtual reality, Physiotherapy, Rehabilitation

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«GAMIFICATION AND VIRTUAL REALITY IN PHYSICAL THERAPY FOR PATIENTS WITH MUSCULOSKELETAL DISORDERS OF THE LOWER LIMBS-REVIEW»

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ABSTRACT

Introduction

Gamification and virtual reality (VR) have emerged as innovative tools in the physical therapy of musculoskeletal disorders. These technologies aim to enhance patient engagement in therapy, making exercises more enjoyable. Their application in musculoskeletal physical therapy of lower limbs is particularly interesting, as patients often struggle to remain committed to treatment programs.

Purpose

The present study investigates the use of gamification and VR through therapeutic exercise in musculoskeletal disorders of the lower limbs, with the aim of analyzing their effectiveness in improving mobility and patient adherence to therapy.

Materials and Methods

A literature review was conducted, focusing on recent studies from the past 10 years sourced from PubMed. The studies included patients with musculoskeletal disorders affecting the lower limbs. Technologies incorporating exercises were evaluated in both clinical settings and home environments. The outcomes of these studies were compared to those of traditional physiotherapy approaches.

Results

The use of gamification and VR led to improvements in patients' mobility, strength, and balance. Patients with osteoarthritis and chronic pain in the lower limbs reported reduced pain and increased endurance in daily activities. Additionally, these technologies provided

motivation for continued home physical therapy and patient adherence.

Conclusions

The findings suggest that gamification and VR offer a promising approach to musculoskeletal physiotherapy of the lower limbs. Further studies are necessary to evaluate their long-term effectiveness.

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Keywords: Gamification, Virtual Reality, Musculoskeletal Disorders, Lower Limbs, physical therapy

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«Pelvic Floor Muscle Training and Its Benefits for Multiple Sclerosis Patients Suffering From Urinary Incontinence and Sexual Dysfunction»

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ABSTRACT

Several reports have been published during the last decade studying the effect of pelvic floor muscle training (PFMT) in treating urinary incontinence and sexual dysfunction in multiple sclerosis (MS) patients. The aim of the current study is to bring up-to-date findings of earlier systematic reviews, taking into account data published up till June 2023. Databases such as PubMed, Scopus, and EBSCOhost were screened for randomized controlled studies, clinical trials, and systematic reviews. The keywords for the current review were MS, urinary incontinence, sexual function, and PFMT. The implementation of predetermined eligibility criteria permitted an appropriate and convenient study selection. English language publications alone were considered. After removing duplicates and screening the initially recovered articles, an initial search within the present review identified 19 studies. Finally, 10 randomized control trials and two systematic reviews were eligible for evaluation and included in the current review. The outcome measures were the severity of incontinence or overactive bladder, leakage episodes, sexual dysfunction, health-related quality of life, and adherence to PFMT. PFMT is a convenient and effective treatment tool that can significantly improve health-related quality of life and reduce the severity of urinary incontinence and overactive bladder symptoms in people with MS. The present review confirms the effectiveness of specific exercises on leakage episodes, pad usage, sexual dysfunction, compliance to treatment, and treatment satisfaction. Further research is needed to strengthen the reported results.

of PFMT in the treatment of urinary incontinence in patients with multiple sclerosis. The study aims to include the latest data up to June 2023 to evaluate the effectiveness of PFMT and investigate whether it can improve the quality of life of these patients, suggesting further research to strengthen existing findings.

Materials and Methods

The method used for this study followed the PRISMA guidelines, a reliable standard for systematic reviews. The literature search was carried out in the period 20-30 July 2023, in the databases Pubmed, Scopus and EBSCOhost, without time restrictions on the publications. Inclusion criteria include patients with MS, urinary incontinence, men and women over 18 years of age participating in a PFMT program. Only full-text articles in English were selected, such as clinical trials, randomized controlled trials and systematic reviews, and articles written in other languages as well as conference abstracts were excluded from the study.

The selection process of articles was performed with the Rayyan platform, in which duplicates were removed, titles, abstracts and full texts were screened by two or more researchers. Data extracted from the selected studies included purpose, database, sample, study design, assessment and reported outcomes.

Results

According to the available data, when PFMT is performed under expert supervision and in combination with biofeedback, it is an effective treatment for improving the quality of life of patients with MS by effectively contributing to the

Introduction

MS is a chronic inflammatory condition that negatively affects the quality of life of MS patients, with incontinence affecting 19-80% of them [1]. PS is also responsible for sexual problems, feelings of shame and low self-esteem [2,3]. Sexual dysfunction affects 40-80% of women with MS and 50-90% of men with the same condition, thus affecting desire, arousal and function [6]. Effective treatment for urinary incontinence and sexual function is PFMT [8,9]. The present study updates the findings of previous reviews including data up to June.

Purpose

The purpose of this research is to update and analyze the findings of previous systematic reviews on the effect

reduction of urinary incontinence episodes and overactive bladder symptoms. In the context of the study, there was also an improvement in both men and women with MS without significant differences between the two sexes. It is important to emphasize that more research is needed for definitive conclusions as the existing evidence partially supports the improvement of incontinence symptoms and quality of life through PFMT.

Conclusions

In conclusion, PFMT is an effective method of treatment for improving incontinence symptoms in patients with MS, overactive bladder symptoms, and their sexual health. Despite the positive results, it is deemed necessary to carry out further research to confirm the findings.

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Key Words: quality of life, pelvic floor muscle training, sexual function, urinary incontinence, multiple sclerosis

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«Cross-cultural adaptation in the Greek language of the Patient Satisfaction Questionnaire»

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ABSTRACT

Introduction

The largest percentage of physical therapy services in Greece is provided by private physical therapy centers. However, there is little recorded data on the degree of patient satisfaction with the health services provided, an element that is useful for optimizing services and maximizing treatment outcomes (Karassavidou et al., 2009; Goula A. et al., 2021).

Purpose

The aim of the present study was the cross-cultural adaptation of the physical therapy Patient Satisfaction Questionnaire (PSQ), in the Greek language, and the investigation of the correlation of the individual parameters of the questionnaire with social, mental and economic parameters.

Materials and Methods

For the translation and adaptation into the Greek language, the process of the six internationally recognized stages for cross-cultural adaptation of questionnaires was followed (Arafat et al., 2016). Then, the Greek version was distributed to patients who received treatment in private physical therapy clinics in the country, had completed at least 5 treatment sessions, and spoke the Greek language. In addition, each patient completed the Visual Analog Scale related to physical pain, the General Physical and Mental Health Status Questionnaire SF-36, and the Hospital Anxiety and Depression Scale. The internal consistency and test-retest reliability of PSQ were tested with Cronbach's alpha and Intraclass Correlation Coefficient (ICC) indices respectively. Correlations of the PSQ total score with the alcoholic, mental and financial parameters were done with the Spearman correlation coefficient (p).

Results

A total of 150 physical therapy patients from 9 physical therapy centers of the country participated. The internal consistency index was high both for the questionnaire as a whole (Cronbach's Alpha = 0.902) and for the individual parameters: reception (0.846), treatment procedures (0.880) and facilities (0.806). No correlation was found with socio-economic and mental parameters.

Conclusions

The Greek version of the questionnaire proved to be practical, valid and reliable during its application in private physical therapy centers in Greece.

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Keywords: health service quality assessment, physical therapy patient satisfaction, physical therapy patient satisfaction assessment tools

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«THE APPLICATION OF CURRENT TECHNOLOGICAL MEANS IN THE PHYSICAL THERAPY REHABILITATION OF LOWER LIMBS FOR STROKE PATIENTS-REVIEW»

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ABSTRACT

Introduction

In physiotherapy, traditional-conventional means are commonly used. However, the rapid increase in technology has provided new equipment and electronic tools have emerged as a means for advanced healthcare delivery, promising benefits in the field of physiotherapy as well.

Purpose

The purpose of this narrative review is to ascertain the effects of using current technological means in the functional rehabilitation of the lower limb in stroke patients. The current review presents available scientific data regarding physiotherapy practices in the functional rehabilitation of the lower limb in stroke patients and does not provide a systematic review and meta-analysis of the results, but discusses some of the available studies.

Materials and Methods

A literature review was conducted covering the last 10 years from PubMed, Google Scholar, and Scopus. Studies that examined the use of technological means in lower limb rehabilitation in stroke patients were included. Studies were excluded if they did not focus on lower limb rehabilitation in stroke and used conventional treatment methods. No assessment tool for the studies was utilized.

Results

The evaluation of the results of different devices confirms that the use of technology can positively influence the outcome of lower limb rehabilitation in stroke patients. There is evidence that the main

goals of physiotherapy in patients recovering from stroke can be achieved through a conventional physiotherapy program, accompanied by modern technological equipment to promote balance or walking ability and to enhance the motor and cognitive functions of patients.

Conclusions

The emergence of new rehabilitation technologies is expected to provide new solutions for physiotherapists and further improve the quality of life for patients.

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Keywords: Physiotherapy, Stroke, Modern technological means

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«Dysmenorrhea: symptom recording and cross-cultural adaptation of the Menstrual Distress Questionnaire (MEDI-Q) in Greek»

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ABSTRACT

Introduction

Dysmenorrhea is defined as the reproduction of pain in the lower abdominal area during menstruation, which is often accompanied by cramps, nausea, mood swings etc (1).

More than 50% of adolescents and 30-50% of menstruating women are affected. In Greece there is no standardized tool available to assess dysmenorrhea and research documentation on Greek women is limited.

Purpose

The paper was part of a bachelor's dissertation. The aim of it was the cross-cultural adaptation of the Menstrual Distress Questionnaire (MEDI-Q) in Greek, the investigation of its prevalence in young women and the development of an advisory leaflet to manage its symptoms.

Materials and Methods

Translation and cross-cultural adaptation of the MEDI-Q (2) was carried out, following the standard procedures, i.e., forward translation from English by two independent translators, synthesis of the translations, back-translation into Greek, comparison of English translations, pilot testing and finally creation of the final version (MEDI-Q_Greek). The questionnaire was then distributed to a random sample of adult women from the University of Patras, without asking for the presence of pain. Statistical analysis of the results was conducted using IBM SPSS Statistics (Version 28.0).

Results

A total of 132 questionnaires were collected, of which 12 were excluded, due to incomplete or invalid responses. As a result, 120 questionnaires were used for analysis. The mean age of menarche in the participants was 12.34 ± 1.2 years. The results showed a percentage of 88,3 % showed symptoms of dysmenorrhea. Also, the adaptation of the questionnaire was successful and it shows good discriminative validity between

the women with and without pain and strong correlations between symptoms and the total MEDI-Q score, such as pain intensity, with a Pearson correlation coefficient of 0.59 and with the other accompanying symptoms (e.g. headache).

Conclusions

The adapted MEDI-Q_Greek proved to be effective but also easily understood by the public. The research results were similar to those of studies conducted abroad, which further supports its validity.

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Key Words: dysmenorrhea, physiotherapy, questionnaire

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