

*Proceedings of*

2<sup>nd</sup> Global Congress on

PHYSIOTHERAPY,  
PHYSICAL REHABILITATION &  
SPORTS MEDICINE

November 18-19, 2019 Paris, France



Hosting Organization:

**Inovine Conferences**

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# DAY 1 NOVEMBER 18, 2019

MONCEAU I

09:00–09:30 – Registrations

09:30–09:45 – Opening Ceremony

## KEYNOTE FORUM

09:45–10:30

**Title: M.P.R New era in Rehabilitation**

*Silverio Di Rocca, M.P.R International School, Switzerland*



10:30–11:15

**Title: Effect Of Soft Tissue Release Manual Therapy Techniques In Patients With Moderate Chronic Obstructive Pulmonary Disease- A Pilot Study**

*Abhijit Dutta, Assam Down Town University, India*



*Networking and Refreshments Break: 11:15–11:30*

## SESSIONS

Physical Therapy Science | Sports & Physiotherapy | Physical Activity | Advancement in Physiotherapy | Rehabilitation Methods | Experimental techniques in Physiotherapies | Physical Medicine & Rehabilitation | Artificial Physiotherapy Methods

Session Chair: **Silverio Di Rocca**, M.P.R International School, Switzerland

Session Co–Chair: **Youssef Masharawi**, Tel Aviv University, Israel

11:30–12:00	<b>Title: Early intervention proposal assisting special needs children and empowering families</b> <i>Ashraf Abd ElGhafar Saad, Step Up Therapy Services, USA</i>
12:00–12:30	<b>Title: Effects of Cupping Therapy</b> <i>Amir Hariti, Sports Physiotherapist, France</i>
12:30–13:00	<b>Title: Clinical, Morphological and Functional Success Predictors Following Lumbar Spinal Surgery in Patients With Chronic Low Back Pain and Leg Pain</b> <i>Youssef Masharawi, Tel Aviv University, Israel</i>

## GROUP PHOTO

*Lunch Break: 13:00–14:00*

14:00–14:30	<b>Title: Clinical Practice and Effectiveness of Kinesio Taping for Lower Limb Musculoskeletal Disorder: A Systematic Appraisal</b> <i>Mohammed R Alkassim, Medical Department of Royal Saudi Land Forces, Saudi Arabia</i>
14:30–15:00	<b>Title: Osteoarthritis, digital first-line treatment and future need for a total joint replacement</b> <i>Leif E Dahlberg, Lund University, Sweden</i>
15:00–15:30	<b>Title: The differentiation of postural control by manipulating visual perception through prism adaptation</b> <i>Aikaterini Ziaka, Physio4you, Greece</i>

*Networking and Refreshments Break: 15:30–15:45*

15:45-16:15	<b>Title: Acute Effects of Plyometric Exercise on Maximum Squat Performance in Female Athletes of Sikkim</b> <i>Remon Chettri, Sikkim Manipal University, India</i>
16:15-16:45	<b>Title: Comparison between the effects of physiotherapy in the neuropsychophysiological profile of patients with different types of hip fractures</b> <i>Stefania Saint, Lydia'' Rehabilitation Center, Kavala, Greece</i>

*Panel Discussion*

## DAY 2 NOVEMBER 19, 2019

MONCEAU

### KEYNOTE FORUM

09:00-09:45

**Title: Does Altering Sitting Posture Have a Direct Effect on Clinical Shoulder Tests in Individuals With Shoulder Pain and Rotator Cuff Degenerative Tears?**

*Youssef Masharawi, Tel Aviv University, Israel*



### SESSIONS

Kinesiology and Biomechanics | Physiotherapy methods and Instrumentation | Vitamins & Dietary Supplements | Rehabilitation Methods | Physiotherapy in Treatment & Care | Experimental techniques in Physiotherapies | Manual & Manipulative Therapy | Womens Health & Palliative Care

Session Chair: **Silverio Di Rocca**, M.P.R International School, Switzerland

Session Chair: **Ashraf Abd ElGhafar Saad**, Step Up Therapy Services, USA

09:45-10:15	<b>Title: Training countermeasures in astronauts before, during and after spaceflight preventing bone loss and osteoporosis</b> <i>Eleonora Roussou, Queen Margaret University (Edinburgh) &amp; Metropolitan College (Athens), Greece</i>
10:15-10:45	<b>Title: Facial palsy secondary to mandibular condyle fracture surgery. A physiotherapy approach case report</b> <i>Cristina Molas-Ferrer, Autonomous University of Barcelona, Spain</i>

*Networking and Refreshments Break: 10:45-11:00*

11:00-11:45	<b>Title: Development of a Supervised Exercise Program for Immigrant Women: Feasibility Study of a Practical Intervention in a Physiotherapy Setting</b> <i>Stephanie Heinecke Thulstrup, Stine Petersen, Fysio Danmark Odense, Denmark</i>
11:45-12:15	<b>Title: Strategies on Dealing with Non- Compliant Patients with Chronic Pain: An Applied Behavioral Analysis Approach on Fear Avoidance</b> <i>Jihan Amr Hussein El Sökkary, University of Montana, UAE</i>
12:15-12:45	<b>Title: Effect Of Elastic Band Resistance Exercise On Kyphosis, Back Extensor Strength And Hand Grip Strength In Prevention Of Osteoporotic Vertebral Fractures In Postmenopausal Women</b> <i>Manish Rana, Loughborough University, UK</i>

*Lunch Break: 12:45-13:45*

13:45–14:15	<b>Title: The effectiveness of the use of gypsum and some methods of physical therapy to rehabilitate those injured by burns of the arm after the cultivation of the skin</b>
	<i>Ayad Omar, Faculty of Physical Education and Sport Sciences University of Tripoli Libya, Libya</i>
14:15–14:45	<b>Title: Hip and knee muscle strength in male and female with CLBP compared to healthy individuals</b>
	<i>Atefeh Rahimi, University of Social Welfare and Rehabilitation, Iran</i>

## POSTER PRESENTATIONS: 14:45:15:45

Poster Judge: **Silverio Di Rocca**, M.P.R International School, Switzerland

DC 001	<b>Title: Effectiveness of spa treatment of lumbar degenerative disc disease</b>
	<i>Monika Sobolak, The Karkonosze University of Applied Sciences in Jelenia Gora, Poland</i>
DC 002	<b>Title: : Increasing Sense of Ownership in stroke patients using Haptic enhanced VR system for fine movement impairment</b>
	<i>Samirah Altukhaim, Physiotherapist in Amiri Hospital Kuwait, PhD student in Reading University, UK</i>
DC 003	<b>Title: Traumatic Spinal Cord Injury (TSCI) in King Fahd Medical City, An Epidemiological Study</b>
	<i>Małgorzata Fortuna, The Karkonosze University of Applied Sciences, Poland</i>
DC 004	<b>Title: Isolating, screening and identifying of phosphate-solubilizing bacteria from rhizosphere of mangrove ecosystems</b>
	<i>Saeed Alshahri, Prince Sultan Military Medical City Hospital, Saudi Arabia</i>
DC 005	<b>Title: Blood Flow Restriction Training Improves Pain and Function in Chronic Regional Pain Syndrome: Two Cases</b>
	<i>Bethany Ridenhour, NYU Langone Orthopedic Center, USA</i>

**B2B Networking & Panel Discussion**

**Awards & Closing Ceremony**





2<sup>ND</sup> GLOBAL CONGRESS ON  
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KEYNOTE FORUM

Day 1



*Silverio Di Rocca*  
M.P.R International School, Switzerland

## M.P.R New era in Rehabilitation

**The Body Equilibrium System (B.E.D.):** The first and only appliance designed exclusively for rehabilitation therapists (physiotherapists, osteopaths, chiropractors, etc. ...) for postural rehabilitation, capable of overriding the stomatognathic system. It is the first device on the market able to counteract the negative effects of the stomatognathic system during rehabilitation.

### Objectives/Learning Outcomes:

*Participants should be able to:*

- Perform a detailed bedside clinical postural and posturometric diagnosis
- Based on the clinical observation and clinical history to evidence :
  - Postural diseases
  - Relation between stomatognathic system and tonic postural system, how to avoid the negative effect in posture.
  - Relation between diet , alimentation and intolerances related with postural diseases
- Recognize the etiology of the postural alteration (main receivers of posture)
- Use of the B.E.D Body Equilibrium Device practically the only device for posture and tmj problems , for rehabilitation therapist.

### Intended audience:

*The intended audience includes:*

- Physiotherapists
- Primary Physicians
- Physiotherapy intern/student
- All rehabilitation therapist

### Biography:

Silverio Di Rocca has completed his Graduation in Dentistry, Post-graduate degree in Functional Orthopaedics both from the University of Buenos Aires, Argentina. He has also done a degree in Dentistry and Prosthetic at the University of Turin, Italy and a Doctorate in Dentistry and Prosthetic at University of Turin, Italy. He is the Director of the M P R International School, Vice President International representative and Founder of API Swiss (International Association of Posturology Switzerland). He is also a Professor in Amocoac Diplomate in Mexico and COMEI, College of Dentistry in Mexico, Associate Professor in I.C.O.M (International College of Osteopathic Medicine) Milan, Italy and an International Honorary member of AMOCOAC.

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*Abhijit Dutta*

*Assam Down Town University, India*

## Effect Of Soft Tissue Release Manual Therapy Techniques In Patients With Moderate Chronic Obstructive Pulmonary Disease- A Pilot Study

In Chronic Obstructive Pulmonary Disease (COPD) an extrapulmonary manifestation includes altered chest wall mechanics and musculoskeletal dysfunction. The influence of soft tissue manual therapy techniques on chest expansion and pulmonary function remains largely unclear. Therefore, the purpose of this pilot study was to find the effectiveness of soft tissue release manual therapy techniques (STRMTT) on improvement of chest expansion, Pulmonary function- FEV1/FEV6, health related quality of life in patients with moderate COPD. A comparative study design with two groups- Experimental Group and Control Group, conducted on total 20 subjects, 10 in each group. The Experimental group subjects received soft tissue release manual therapy techniques along with conventional treatment whereas control group subjects received only conventional exercises. Both the group subjects received treatment twice in a week for a period of eight weeks. The outcome measures such as Chest expansion, pulmonary function FEV1/FEV6 and Quality of life were measured at before intervention and after 8 weeks of intervention. The comparative analysis of post intervention means using Independent 't' test between the groups found statistically significant difference ( $p < 0.05$ ) in Chest expansion at Axillary level and Xiphisternum level, FEV1/FEV6, between the groups and there is no statistically significant difference in Quality of life measured using St. George respiratory questionnaire components- Symptoms, Activity, Impact and total score. The study concluded that 8 weeks of soft tissue release manual therapy techniques along with conventional treatment shown statistically significant effect in improving chest expansion and FEV1/FEV6 when compared with the only conventional exercises.

### Publications:

1. Abhijit Dutta, P C Bhattacharyya , Jogesh Sarma "Immediate Effect of Soft Tissue Release Manual Therapy Techniques on Chest Expansion and FEV1/FEV6 in Subjects with Moderate COPD" International Interdisciplinary Research Journal, {Bi-Monthly}, ISSN 2249-9598, Volume-09, Mar 2019 Special Issue (04)
2. Abhijit Dutta, P C Bhattacharya, Jogesh Sarma "Effect Of Soft Tissue Release Manual Therapy Techniques In Patients With Moderate Chronic Obstructive Pulmonary Disease- A Pilot Study" International Journal of Scientific Research and Reviews ISSN: 2279-0543 Vol. 8 Issue 2, April -June, Issue 2019.
3. A Comparitive Study On Effectiveness Of Taping With Iontophoresis And Taping Alone In Chronic Plantar Fasciitis. Int J Physiother. Vol 3(2), 238-241, April (2016) Issn: 2348 - 8336
4. The Combined Efficacy Of Neural Mobilization With Transcutaneous Electrical Nerve Stimulation (Tens) Versus Neural Mobilization Alone For The Management Of Cervical Radiculopathy. Int J Physiother. Vol 3(2), 242-245, April (2016) Issn: 2348 - 8336
5. Efficacy Of Modified Proprioceptive Neuromuscular Fascilitation Stretching With Cryotherapy Over Manual Passive Stretching With Cryotherapy On Hamstring Flexibility. Int J Physiother. Vol 3(2), 228-232, April (2016) Issn: 2348 - 8336

### Biography:

Abhijit Dutta completed his Bachelors in Physiotherapy in the year 2003 under Rajiv Gandhi University of Health Sciences, Karnataka, India. He then joined as a full time clinical therapist at Down Town Hospitals Pvt.Ltd. in 2004 and worked in the Dept. of Physiotherapy till 2007. He completed his Masters in Physiotherapy from 2007-2009 under Rajiv Gandhi University of Health Sciences, Karnataka, India. In 2009 he joined as a lecturer and a clinical therapist in the same organistaion. At present he is working as an Associate professor and as Associate Dean, Faculty of Paramedical Scien cesin Assam down town University with a total experience of 15yrs of both clinical and academics. He is also pursuing PhD from the same university. He has around 15 publications in International Journal of Physiotherapy and has guided around 14 PG students in their research work. He is a life time member of Indian Association of Physiotherapists and an executive member of All Assam Physiotherapy Association. He has been awarded by Significant Contribution award at Agartala India in August 2015 and Physio Excellence Award at AIIMS , New Delhi, India in December 2015 and Best Academician Award in September 2016 at Maharishi Dayanand University, Rohtak, India, Remarkable achievement award at PHYSIOUDDAN 2017 at Delhi May 28th 2017 and Dr M G Mokashi award in 2018. Attended the 2nd International Conference and Expo on Novel Physiotherapies June 9-11, 2016 London, UK as an oral presenter for a research paper titled " A comparative study to find out the effectiveness of muscle energy technique versus myofascial trigger point release of upper trapezius in mechanical neck pain" representing Assam down town University from India.

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2<sup>ND</sup> GLOBAL CONGRESS ON  
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SCIENTIFIC TRACKS & ABSTRACTS

Day 1

## Day 1 November 18, 2019

### Sessions:

Physical Therapy Science | Sports & Physiotherapy | Physical Activity | Advancement in Physiotherapy | Rehabilitation Methods | Experimental techniques in Physiotherapies | Physical Medicine & Rehabilitation | Artificial Physiotherapy Methods

Session Chair: **Silverio Di Rocca**, M.P.R International School, Switzerland

Session Co-Chair: **Youssef Masharawi**, Tel Aviv University, Israel

#### Session Introduction

**Title: Early intervention proposal assisting special needs children and empowering families**

*Ashraf Abd ElGhafar Saad, Step Up Therapy Services, USA*

**Title: Effects of Cupping Therapy**

*Amir Hariti, Sports Physiotherapist, France*

**Title: Clinical, Morphological and Functional Success Predictors Following Lumbar Spinal Surgery in Patients With Chronic Low Back Pain and Leg Pain**

*Youssef Masharawi, Tel Aviv University, Israel*

**Title: Clinical Practice and Effectiveness of Kinesio Taping for Lower Limb Musculoskeletal Disorder: A Systematic Appraisal**

*Mohammed R Alkassim, Medical Department of Royal Saudi Land Forces, Saudi Arabia*

**Title: Osteoarthritis, digital first-line treatment and future need for a total joint replacement**

*Leif E Dahlberg, Lund University, Sweden*

**Title: The differentiation of postural control by manipulating visual perception through prism adaptation**

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**Title: Acute Effects of Plyometric Exercise on Maximum Squat Performance in Female Athletes of Sikkim**

*Remon Chettri, Sikkim Manipal University, India*

**Title: Comparison between the effects of physiotherapy in the neuropsychophysiological profile of patients with different types of hip fractures**

*Stefania Saint, Lydia'' Rehabilitation Center, Kavala, Greece*

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Early intervention proposal assisting special needs children and empowering families

**Ashraf Abd ElGhafar Saad**

Step Up Therapy Services, PLLC, USA

A recent study in the Middle East found that 5-10 percent of children under 18 years old had at least one type of disability, with the most common being speech, motor, and mental disabilities. Our mission is to help these children and their families get the help they need, in order for the children to grow up and function normally in society. The first step in this process is to enroll the child in the program, and a number of people have a role in doing this. The child's parents and teachers must take the appropriate action if they notice the child has a delay or are concerned about anything in the child's behavior. A service coordinator will sit with the family and evaluate their needs. The child will then be evaluated by a number of therapists, including speech therapists, physical therapists, occupational therapists, and psychologists. Once a child is determined to be eligible for services, a committee will come up with an individual therapy plan based on the child and the family's needs. This plan is reviewed and updated every year based on the child's development and improvement. With the support system this program provides, we can help our children reach their full potential.

### Biography:



My name is Ashraf Abdelghafar Saad, and I am a Doctor of Pediatric Rehabilitation. I graduated from Cairo University School of Medicine, department of Physical Therapy with a bachelors degree in 1989. I worked in Cairo University Hospital until 1996, when I moved to the United States of America. In late 1999, I got my masters degree in physical therapy from Rocky Mountain University. Then, in 2005, I earned my doctorate degree in Pediatric Rehab from Seton Hall University. Along with my professor, I published a paper in the American Medical Journal for my graduation thesis. This paper made us pioneers in creating database to compare balance in children with Juvenile Arthritis and balance in children without the disease. 2 years later, I received an offer from New York City and New York State to own and run an early intervention program for infants and toddlers from 0-3 years. This program targeted children living in the poor and underprivileged communities of New York who had any and all kinds of disabilities. We provided services, including physical therapy, occupational therapy, psychotherapy, vision, hearing aids, social workers, special instructors, and evaluations for more than 1200 children every year. In 2008, New York State provided me with an opportunity to run a 4410 program for children 3-5 years of age. Our mission was to continue to work with and provide services for under-served children in the Middle East and in impoverished areas in the State. Currently, I am the founder and owner of Step Up Therapy Services. Our goal is to expand the program to be able to serve needed children in the Middle East from 0-18 years old as well, in order to help as many families as we can.

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### Notes:

## Effects of Cupping Therapy

**Amir Hariti**

Sports Physiotherapist , France

Cupping therapy has been used widely as a safe and common method to tackle soft tissue lesions in most countries and has been used for health promotion, preventive, and therapeutic purposes. Eber's papyrus (1550 BC) from Ancient Egypt is one of the oldest medical texts to mention cupping therapy. It's performed by applying cups to selected skin points and creating a sub-atmospheric pressure, either by heat or by suction. The results showed that incorporation of cupping therapy in a routine physical therapy programme can reduce the severity of symptoms and can significantly decrease the VAS scores. There is a promising evidence in favour of the use of wet cupping for musculoskeletal pain, specifically nonspecific low back pain, neck pain, Carpal tunnel syndrome, and brachialgia.

### Publications:

1. MOURA (2018) BRAZIL Cupping therapy and chronic back pain: systematic review and meta-analysis 10.1590/1518-8345.2888.3094
2. MOHAMMADI (2019) IRAN: The effects of cupping therapy as a new approach in the physiotherapeutic management of carpal tunnel syndrome 10.1002/pri.1770
3. KIM (2018) KOREA Is cupping therapy effective in patients with neck pain? A systematic review and meta-analysis 10.1136/bmjopen-2017-021070
4. BRIDGETT (2018) AUSTRALIA Effects of Cupping Therapy in Amateur and Professional Athletes: Systematic Review of Randomized Controlled Trials 10.1089/acm.2017.0191
5. MOHSEN (2018) IRAN: Wet-Cupping Is Effective on Persistent Nonspecific Low Back Pain: A Randomized Clinical Trial 10.1007/s11655-018-2996-0
6. WANG (2017) CHINA: The effect of cupping therapy for low back pain: A meta-analysis based on existing randomized controlled trials 10.3233/BMR-169736

### Biography:



Master's degree in Physical Therapy in 2014 - stretching and sportive performance. After the cupping therapy (2015) and manual therapy (2016) formations, an expert sport physiotherapy's formation (2019) was done with one of the best French formation center

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### Notes:

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Clinical, Morphological and Functional Success Predictors Following Lumbar Spinal Surgery in Patients With Chronic Low Back Pain and Leg Pain

Youssef Masharawi, Lubetzky, Anat V. PT, Soroka, Avihai MScPT, Harel, Daphna, Errico, Thomas, Bendo, John, Leitner, Joseph, Shabat, Shay, Ashkenazi, Eli, Floman, Yizhar, Moffat, Marilyn PT, FAPTA

<sup>1</sup>New York University, USA

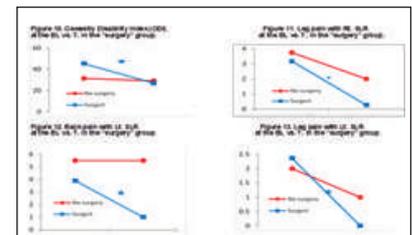
<sup>2</sup>Tel Aviv University, Israel

<sup>3</sup>Nicklaus Children's Hospital, USA

<sup>4</sup>The Spine Center, USA

<sup>5</sup>Spine Unit, Meir Medical Center, Kfar Saba, Israel

<sup>6</sup>Israel Spine Center, Assuta Hospital, Israel



**Outline of the problem:** Globally, there is an increase in the number of older adults that go through lumbar spine surgery. This number is expected to increase in the upcoming years. Variability in surgical outcomes and complications rate, indicate that candidates for surgery should be assessed with good diagnostic and predictive tests so that any surgical decision in their cases will be informed by a realistic prediction of treatment outcome. The international classification of functioning, disability and health (ICF) allows for a comprehensive description of the patient as a whole and can be used to classify patients according to their anatomy, pathology, impairments and capacity. The primary goal of our research was to determine if ICF framework in conjunction with clinical, morphological and parameters can be predictors of: self-reported successful outcomes in patients suffering from chronic low back pain (CLBP) and leg symptoms following either a decompression or fusion lumbar surgery or a non-surgical 'wait and see' approach.

**Methods:** Patients have been recruited from Meir Medical Center, from Assuta medical center, Israel and from NYU Medical Center, USA. Patients underwent a comprehensive clinical assessment including functional tests and balance tests (the single-leg-stance test, four-step-square-test and 8-foot-up-and-go test) questionnaires reporting pain, disability, other personal factors, and imaging analysis. Response to treatment has been assessed short-term (3 months) and long-term (6 and 12 months) and success predictors have been identified.

Our preliminary results have indicated that risk of falling is higher than surgeons suspect and support the importance of screening for balance and fall risk in adults undergoing lumbar spine surgery.

### Recent Publications:

1. Weisman, A, John Q, and Youssef M (2019). Congenital Insensitivity to Pain: A Misnomer. *The Journal of Pain*. 20(9):1011-1014.
2. Masharawi, Y, Haj, A and Weisman, A (2019). Lumbar Axial Rotation Kinematics in an Upright Sitting and With Forward Bending Positions in Men With Non-Specific Chronic Low Back Pain. *Spine* (2019). Published ahead of print.
3. Haj, A, Weisman, A and Masharawi, Y (2019). Lumbar axial rotation kinematics in men with non-specific chronic low back pain." *Clinical Biomechanics*. 61: 192-198.
4. Haj-Ali, R, Wolfson, R and Masharawi, Y. A patient specific computational biomechanical model for the entire lumbosacral spinal unit with imposed spondylolysis." *Clinical Biomechanics*. 68: 37-44.
5. Weisman, A, and Masharawi, Y (2018). Does Altering Sitting Posture Have a Direct Effect on Clinical Shoulder Tests in Individuals With Shoulder Pain and Rotator Cuff Degenerative Tears? *Physical Therapy*. 99.2: 194-202.

### Biography:



Youssef Masharawi is a Senior Lecturer in the Department of Physical Therapy at Tel Aviv University. He is a physical therapist, clinically specialized in the orthopedic domain as a manipulative physiotherapist. In his Ph.D., he analyzed the morphometry of the vertebral column with biomechanical implications. Dr. Masharawi established the Spinal Research Lab for clinical and functional research projects concerning the spine and related conditions. He published more than 65 studies mainly on spinal form and function. He teaches undergraduate physical therapy students about the clinical reasoning process and physiotherapy in the movement system as well graduate students in the Spinal Form and Function course. Dr Masharawi Youssef is a reviewer and a member in the Associate Board of Spine Journal and an active member in the International Society for the Study of the Lumbar Spine.

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

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## Clinical Practice and Effectiveness of Kinesio Taping for Lower Limb Musculoskeletal Disorder: A Systematic Appraisal

**Mohammed R. Alkassim**

Medical Department of Royal Saudi Land Forces, KSA

Kinesio tape (KT) is a proprietary product that purports to offer a range of benefits in the treatment and prevention of various musculoskeletal conditions. Kinesio taping involves the application of elastic adhesive tape to areas of pain or dysfunction. It has a diverse mechanism of action including reduction of pain through stimulation of sensory afferents and increased range of motion (ROM) due to enhanced local circulation. Despite a recent increase in its public profile due to use of KT by athletes at major sporting events, the clinical benefits of the intervention remain unclear. The main objective of this Systematic Appraisal (SA) is to review a clinical practice and level of effectiveness of KT application for lower limb musculoskeletal disorders. Electronic databases including Cinahl, Nora, Web of Science, Cochrane and Medline were searched for studies conducted since 2008. The studies were selected on the basis of the research questions and objectives. The list was narrowed down to six studies, of which five were randomised controlled trials and one was a cross-over research design. The studies used baseline data to determine the effectiveness of KT for lower limb musculoskeletal disorders. The results of two studies revealed that KT might be beneficial in rehabilitation for musculoskeletal disorders. The results indicate that KT proved to be a highly promising application for reducing pain when compared with sham and athletic tapes. In one study, while comparing KT with sensory motor training for proprioception, sensory motor training showed better results than KT, but KT was better at reducing pain on a short-term basis. The remaining two studies on ankle sprains reported that KT did not reduce swelling or improve functional performance. Kinesio tape may play a role in reducing short-term pain in lower extremity musculoskeletal disorders, however in future high quality studies that contribute to the evidence base for its use are needed with large datasets.

### Biography:



Mohammed Alkassim is working as Senior Pt At Sa Government Saudi Arabia and he has done his Masters from Northumbria University.

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### Notes:

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

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## Osteoarthritis, digital first-line treatment and future need for a total joint replacement

Leif E Dahlberg and Håkan Nero  
Lund University, Sweden

**O**steoarthritis (OA) is the most common joint disease. It generates symptoms of pain and impaired physical function with a substantial impact on quality of life. OA contributes increasingly to the global burden of disease in adults. End stage knee and hip OA can be successfully managed by a total joint replacement operation (TJR) with a prosthesis. Unfortunately some 20 % of patients are not satisfied after a TJR. Many studies have calculated a future increased need of total joint replacement due to an increase of BMI and the level of sedentary lifestyle in the population. At the same time other studies suggest that OA disabilities to a large extent can be managed by first line core treatment including exercise, education and weight control. However, a recent meta-analysis of studies evaluating care for people with OA showed that first line treatment is not well implemented, less than 40% of the OA population had received this type of treatment (4). A way to facilitate implementation of first line OA treatment is to develop digital programs that enables easy access to care, is open 24/7 and can be used wherever patients are located. Studies have shown pain and function improvement as well as change in willingness to have an operation after six weeks in a digital program. The intervention program consists of daily distributed video instructions for neuromuscular exercises and information of OA symptoms and its management based on current guidelines and research in the form of text lessons. Additionally, continuous access to and dialogue with a physiotherapist is provided. It has been shown that the ability to walk 6 000 steps/day is a possible estimate of the level of walking activity to protect against developing functional limitation in people with knee OA. Furthermore, it is suggested that the “sit to stand” clinical test of physical function is a proxy for 6 000 steps/day walking ability is related to satisfactory Health-Related Quality of Life (HRQL). The present study describes the digital program and examines the change in willingness to have surgery after six months of treatment.

**Methods:** To be included in the study patients had a hip or knee OA diagnosis, had followed the digital program for six months and have performed a sit to stand test at start and at 6 months. Adding on, included participants reported symptoms severe enough for needing a TJR at baseline.

**Results:** 173 patients with a mean age (SD) of 62 (8); mean BMI (SD) 28,5 (5,8); mean adherence % (SD) 74% (20%) fulfilled the inclusion criteria. After six months of continuous participation in the digital program, 48% (83/173) individuals no longer reported a need for a TJR. The remaining 52% still considered needing surgery.

**Discussion:** Evidence-based nonsurgical OA treatment may reduce the need for surgery and should therefore be offered as the first-line treatment option to patients with hip and knee OA. The results also support the idea that such treatment programs have the potential to improve selection of patients for total joint replacement.

### Biography:



Håkan Nero is a PhD and a registered physiotherapist from the Karolinska Institute in Stockholm, now an active full-time researcher at Lund University, in southern Sweden. Dr. Nero has been researching exercise as medicine since 2010 and defended his thesis on accelerometer based physical activity measurement before and after high intensity exercise for older adults, in 2016. He has a keen interest in helping patients with pain and decreased physical function take control of their disease and empowering them to treat themselves with the help of exercise and education. His main focus now is researching the effects of digital osteoarthritis treatment according to international guidelines.

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Leif Dahlberg is senior Professor in Orthopaedics, Clinical Sciences Lund, Lund University, Sweden. He received his MD at Karolinska Institutet, Stockholm in 1983. He became professor of Orthopaedics in 2008 at Lund University and was Head of Orthopaedics, Lund 2012-2019. Dahlberg has supervised 15 PhD-students, published >120 peer-reviewed papers, >7000 citation and have an H-index of 41 (Researchgate.net). Dahlberg's research focuses on joint health and disease in order to optimize evidence-based non-operative treatments of joint disease. Research includes cartilage molecular studies, MRI and clinical interventions, specifically using human models of OA development in post-injured patients. Dahlberg initiated the National Quality Registry BOA 2008 (Better management of patients with OsteoArthritis) and is co-founder and CMO at Joint Academy a digital program for patients with osteoarthritis that empower and support to restore peoples movement.

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## The differentiation of postural control by manipulating visual perception through prism adaptation

**Aikaterini Ziaka**

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Postural control is affected in cases of neurological pathology. One of the main deficits is the body's midline shift, affecting the body symmetry, motor-visual coordination and completely changing the balance and prospects of movement. The reorganization and realignment of body's midline shift could be accomplished by manipulating visual perception through prism adaptation and it is a priority goal in neurorehabilitation. In many cases, visual system could be used as the key system of postural control in daily functional tasks and prisms are the main tool of visual manipulation and adaptation for this purpose.

### Biography:



Aikaterini Ziaka has completed her bachelor degree on Physiotherapy at Alexandreio Technological Educational Institute of Thessaloniki (A.T.E.I.Th.). She completed her MSc at University of Thessaly and her research was "The differentiation of postural control by manipulating visual perception through prism adaptation". She is a pediatric therapist over 28 years period and she specialized in NDT-Bobath method. She has been at A.T.E.I.Th. as lab assistant professor in neurorehabilitation for 11 years. She completed her studies on Orthopedic Manipulative Therapy Diploma in 2016 and she is an OMT therapist since. She had many publications and she always remains informed on neurorehabilitation. She owns a physiotherapy lab, named Physio4you, since 2012. From the beginning of her career she was exclusively devoted to children and their deficits. She is married with 2 children.

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Notes:

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Acute Effects of Plyometric Exercise on Maximum Squat Performance in Female Athletes of Sikkim

**Remon Chettri**

Sikkim Manipal University, India

**Background:** To enhance the explosive power, Plyometric training activities are frequently used by a wide range of athletes. With the advent of newer methods of training, role of plyometrics and its effects needs to be understood and incorporated in training and rehabilitation protocols. Number of reviews on the benefit of plyometric training focus on male participants. Furthermore, there is a dearth in literature relating to female athletes and plyometric training especially in Sikkim. Thus, this study examines the acute effects of plyometric exercise on maximum squat performance in female athletes of Sikkim.

**Study Design:** Repeated Measures Design – A Cross Sectional Study.

**Outcome measure:** 1RM lift.

**Participants:** Eligible 30 female athletes of Sikkim participated in 3 testing sessions separated by at least 6 days of rest.

**Method:** During 1<sup>st</sup> testing session the 1RM was assessed on back squat exercises. Prior to that the subjects performed dynamic stretching (10 minutes) for warm up. Subjects then performed 5 sub maximal sets of 1–8 repetitions before attempting a 1RM lift. Subjects rested for at least 4 minutes between 1RM trials. During the first testing session (S1) subjects performed a series of sets with increasing load until their 1RM was determined. During the 2<sup>nd</sup> and 3<sup>rd</sup> testing sessions subjects performed in counterbalanced order either 3 double-leg Tuck Jumps (TJ) or 2 Depth Jumps (DJ) 30 seconds before each 1RM attempt.

**Result:** Plyometric exercise DJ and TJ performed before 1RM attempt significantly increased 1RM squat performance which is 9.733 Kgs and 4.467 Kgs respectively when compared with the results from the first testing session, which did not include plyometric exercise 3.867 Kgs. Also, DJ when performed before squat performance resulted in a significantly higher 1RM lift than the TJ ( $p < 0.05$ ).

**Conclusion:** The data suggest that both TJ and DJ performed before 1RM testing may enhance squat performance in trained female athletes when compared with dynamic stretching for warm up alone. But DJ was more triumphant in escalating the performance than TJ.

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### Biography:



Remon Chettri has experience of being the first sports physiotherapist in the state of Sikkim, having joined the Manipal Group since 2009, he has had a wide experience in the field of Sports Medicine and Rehabilitation. He is the consultant for Sikkim Olympic Association which provides a major thrust area in research and improving the quality of an athlete in Sikkim. Nature conservation and photography remains his other areas of interests. Dr Remon Chettri, is a BPT alumnus of Sikkim Manipal College of Physiotherapy, Gangtok Sikkim and his Masters in Sports Medicine and Rehabilitation from HNBU, Garhwal, India. He is working as Assistant Professor in Sports Medicine since 2009 in Sikkim Manipal University and also a part time PhD scholar. Consultant Therapist for Sikkim Olympic Association and all sports associations in the State under the SOA. A National Level Futsal player and also the President of Futsal Association of Sikkim. Dr Chettri is an avid sports person and takes keen interest in Sports Injuries and Rehabilitation. He has a FIFA Diploma in Football Medicine and IASP Pain Certification from New Zealand.

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November 18-19, 2019 Paris, France

## Comparison between the effects of physiotherapy in the neuropsychophysiological profile of patients with different types of hip fractures.

Stefania Saint<sup>1</sup> and Rafail Ioannidis<sup>2</sup><sup>1</sup>Lydia Rehabilitation Center, Greece<sup>2</sup>General Hospital of Drama, Greece

**Statement of the Problem:** Hip joint fractures are a major cause of neurological disorders. We evaluate the effects of physiotherapeutic interventions on the neuropsychophysiological profile of patients, between the two most common hip fractures, while on rehabilitation, in a private center of the regional Greece, in the immediate postoperative period.

**Methodology & Theoretical Orientation:** 64 patients after surgery for intertrochanteric fracture (Group A) and for femoral neck fracture (Group B), who had a certain standardized physiotherapeutic protocol during their rehabilitation, were studied post-operatively. For all patients, the mini-mental state test and the Confusion Assessment Method score (CAM score) were recorded on the 1st day (day of import), on the 5th day, on the 15th day and on the 30th day of hospitalization.

**Findings:** For the day of import and for the 5th day, the statistical analysis did not reveal a statistically significant difference in the neuropsychophysiological status of the patients (day of import  $p=0.577$  and 5th day  $p=0.273$ ), but for the 15th day and for the 30th day, the results were statistically significant for both tests (15th day  $p=0.047$  and 30th day  $p=0.038$ ) with a better outcome for Group B.

**Conclusion & Significance:** Following a specific physiotherapeutic protocol in the aforementioned type of patients is an important tool in maintaining and improving the neurological status of these patients who are at a high risk of developing neurological disorders and delirium. Particularly important is that according to our study there is a difference in the final outcome between the patients with the two most common types of hip fractures, with a better final cognitive outcome for those with a femoral neck fracture. However, it is crystal clear that all patients were more or less benefited from the physiotherapeutic interventions, with better scores in both tests.

### Recent Publications:

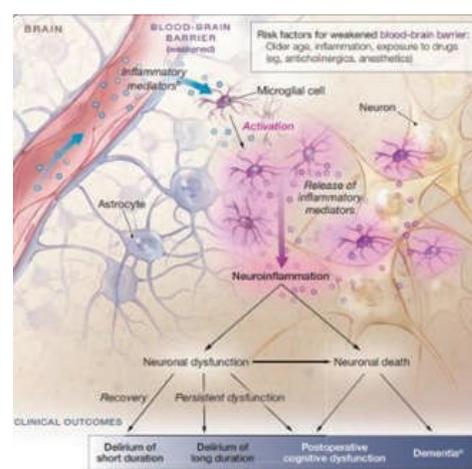
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5. Review, S. (2006). Occurrence and outcome of delirium in medical in-patients: a systematic literature review, (April), 350–364. <https://doi.org/10.1093/ageing/afl005>

### Biography:



Saint Stefania is a registered Physiotherapist who graduated in 2016 from Alexander Technological Educational Institute of Thessaloniki, Greece, in Physiotherapy. In 2018, she completed a Master of Science in Neuromuskuloskeletal Physiotherapy. She currently works at a Rehabilitation Center in Kavala, Greece. Most recently, she completed level 1 of Bobath Courses. Stefania loves to learn new things and is always looking to upgrade her skills.

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2<sup>ND</sup> GLOBAL CONGRESS ON  
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NOVEMBER 18-19, 2019 PARIS, FRANCE



KEYNOTE FORUM

Day 2



*Youssef Masharawi*

University of Southern Denmark Odense, Denmark

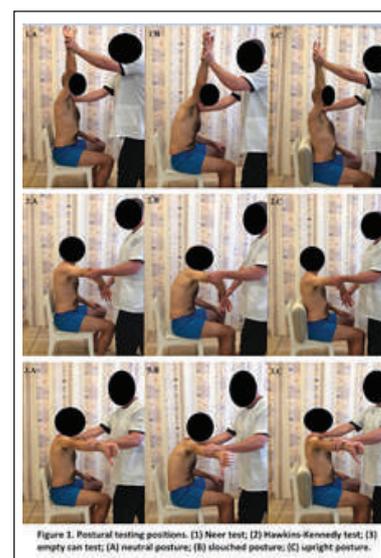
## Does Altering Sitting Posture Have a Direct Effect on Clinical Shoulder Tests in Individuals With Shoulder Pain and Rotator Cuff Degenerative Tears?

**Statement of the problem:** Posture variations have been repeatedly linked to shoulder kinematics, strength, range of motion and rotator cuff diseases, however, no study has as yet examined its possible link with shoulder pain provocation and pain levels during clinical shoulder tests

**Objectives:** To examine whether changing posture while sitting modifies pain provocation and pain level during performance of three clinical shoulder tests in subjects with shoulder pain and rotator cuff degenerative tears (RCDT).

**Methods:** Seventy individuals allocated into 2 groups by an experienced physiotherapist: 35 subjects with symptomatic shoulders and RCDT diagnosed by ultrasound (tear size =  $1.0 \pm 0.5$  cm) and 35 control subjects with no symptoms in the upper limb. All subjects were tested by a second physiotherapist for pain provocation (yes/no) and pain level (VAS) using three common clinical shoulder tests: the Neer, the Hawkins-Kennedy and empty can, while sitting in a neutral, slouched and upright posture. Shoulder muscle forces were examined by a hand-held dynamometer for possible correlations only in the neutral posture. All subjects were asked to fill out the quick DASH questionnaire.

**Results:** In the Symptomatic group, all three clinical tests demonstrated similar pain provocation (100% repeatability) and pain level in all three sitting postures ( $3.7 < \text{VAS} < 4.4$ ,  $p > 0.05$ ). Muscle force mean ranges of the study groups were 4.4-7 kg and in the control group, 6-10.5 kg. No correlations were found between age, body mass index, painful shoulder, hand dominance, onset of symptoms, severity and tear size with any of the dependent variables. Our work indicates that changing posture while sitting does not directly affect pain provocation and pain levels during performance of three clinical shoulder tests in subjects with shoulder pain and RCDT



### Recent Publications:

1. Weisman, A, John Q, and Youssef M (2019). Congenital Insensitivity to Pain: A Misnomer. *The Journal of Pain*. 20(9):1011-1014.
2. Masharawi, Y, Haj, A and Weisman, A (2019). Lumbar Axial Rotation Kinematics in an Upright Sitting and With Forward Bending Positions in Men With Non-Specific Chronic Low Back Pain. *Spine* (2019) Published ahead of print.
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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

4. Haj-Ali, R, Wolfson, R and Masharawi, Y. A patient specific computational biomechanical model for the entire lumbosacral spinal unit with imposed spondylolysis." *Clinical Biomechanics*. 68: 37-44.
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## Biography:

Youssef Masharawi is a Senior Lecturer in the Department of Physical Therapy at Tel Aviv University. He is a physical therapist, clinically specialized in the orthopedic domain as a manipulative physiotherapist. In his Ph.D., he analyzed the morphometry of the vertebral column with biomechanical implications. Dr. Masharawi established the Spinal Research Lab for clinical and functional research projects concerning the spine and related conditions. He published more than 65 studies mainly on spinal form and function. He teaches undergraduate physical therapy students about the clinical reasoning process and physiotherapy in the movement system as well graduate students in the Spinal Form and Function course. Dr Masharawi Youssef is a reviewer and a member in the Associate Board of Spine Journal and an active member in the International Society for the Study of the Lumbar Spine.

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Notes:



2<sup>ND</sup> GLOBAL CONGRESS ON  
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SCIENTIFIC TRACKS & ABSTRACTS

Day 2

## Day 2 November 19, 2019

### Sessions:

Kinesiology and Biomechanics | Physiotherapy methods and Instrumentation  
| Vitamins & Dietary Supplements | Rehabilitation Methods| Physiotherapy  
in Treatment & Care | Experimental techniques in Physiotherapies | Manual &  
Manipulative Therapy | Womens Health & Palliative Care

Session Chair: **Silverio Di Rocca**, M.P.R International School, Switzerland

Session Co-Chair: **Ashraf Abd ElGhafar Saad**, Step Up Therapy Services, USA

#### Session Introduction

**Title:** Training countermeasures in astronauts before, during and after spaceflight preventing bone loss and osteoporosis

**Eleonora Roussou**, Queen Margaret University (Edinburgh) & Metropolitan College (Athens), Greece

**Title:** Facial palsy secondary to mandibular condyle fracture surgery. A physiotherapy approach case report

**Cristina Molas-Ferrer**, Autonomous University of Barcelona, Spain

**Title:** Development of a Supervised Exercise Program for Immigrant Women: Feasibility Study of a Practical Intervention in a Physiotherapy Setting

**Stephanie Heinecke Thulstrup**, Stine Petersen, Fysio Danmark Odense, Denmark

**Title:** Strategies on Dealing with Non- Compliant Patients with Chronic Pain: An Applied Behavioral Analysis Approach on Fear Avoidance

**Jihan Amr Hussein El Sökkary**, University of Montana, UAE

**Title:** Effect Of Elastic Band Resistance Exercise On Kyphosis, Back Extensor Strength And Hand Grip Strength In Prevention Of Osteoporotic Vertebral Fractures In Postmenopausal Women

**Manish Rana**, Loughborough University, UK

**Title:** The effectiveness of the use of gypsum and some methods of physical therapy to rehabilitate those injured by burns of the arm after the cultivation of the skin

**Ayad Omar**, Faculty of Physical Education and Sport Sciences University of Tripoli Libya, Libya

**Title:** Hip and knee muscle strength in male and female with CLBP compared to healthy individuals

**Atefeh Rahimi**, University of Social Welfare and Rehabilitation, Iran

**Title:** The effectiveness of the use of gypsum and some methods of physical therapy to rehabilitate those injured by burns of the arm after the cultivation of the skin

**Ayad Omar**, University of Tripoli Libya, Libya

**Title:** Hip and knee muscle strength in male and female with CLBP compared to healthy individuals

**Atefeh Rahimi**, University of Social Welfare and Rehabilitation, Iran

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Training countermeasures in astronauts before, during and after spaceflight preventing bone loss and osteoporosis

Eleonora Roussou

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**Introduction:** Since the first human spaceflight took place in 1961, the effects of microgravity on the human body were studied considering astronauts' health and safety. Therefore, reduced gravity or microgravity and decreased forces, in space and planets surfaces, acting on astronauts' body producing multi- systemic dysfunctions, such as bone loss, muscle atrophy, cardiovascular changes, vestibular and sensory altering metabolic and nutritional status and dysregulation of the immune system.

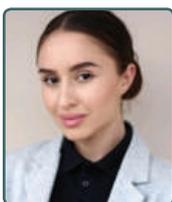
**Purpose:** to review which training protocol before, during and after spaceflight can prevent bone loss and osteoporosis in astronauts.

**Methods:** Databases used are the website of the National Aeronautics Space Administration (NASA), the Medline and the website of the Queen Margaret University (QMU).

**Results:** According to these findings, astronauts' pre -flight prevention of bone losses, includes exercises at CEVIS, ARED and TVIS devices and nutrition. During their space travel, resistance exercise devices such as CEVIS, T2, ARED and TVIS in combination with dietary supplements and nutrition can prevent osteoporosis. Penn State 0 -G locomotion simulator and Kistler force platform can affect bone regulation. Astronauts' post -flight programme comprises T2, CEVIS and ARED, resistive and aerobic exercises and nutrition.

**Conclusion:** Pre -flight training countermeasures are TVIS, CEVIS and ARED. In -flight training, T2, TVIS, resistive exercises, aerobic training in ARED, TVIS, CEVIS, Kistler Gaitway treadmill and Penn State 0 -G locomotion simulator. Post -flight countermeasures contain dynamic stretching, warm-up, aerobic and resistance training, mobility and balance every, jumping drills, core exercise, static stretching. Moreover, resistance training in Flywheel Exercise Device and aerobic exercise in LBNP treadmill can be effective in astronauts' bones after their return to Earth.

### Biography:



Roussou Eleonora completed her bachelor's degree on Physiotherapy. She had her clinical practice in Filoktitis Rehabilitation Center (2017), IASO GENERAL hospital (2017-2018) and Iatriko hospital of Athens (2018-2019). In the bachelor's honours project (literature review) she investigates the astronauts' training countermeasures preflight, inflight and postflight preventing bone losses and osteoporosis. Additionally she undertook a research study concerning footballers and athletes whether the IASTM technique, light-hand massage and vibration therapy are effective in hamstrings injuries. She is graduated from Queen Margaret University which cooperates with Metropolitan College of Athens.

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### Notes:

## Facial palsy secondary to mandibular condyle fracture surgery. A physiotherapy approach case report

Cristina Molas-Ferrer

Autonomous University of Barcelona, Spain

**Introduction:** There is still controversy of efficacy between surgical and nonsurgical management of mandibular condyle fracture. Generally, there is consensus in operating significant dislocation and displacement cases<sup>1</sup>. Even though different approaches have been studied to minimize the side effects<sup>2,3</sup>, facial palsy frequently appears secondary to intervention, commonly diminishing by itself in a period of 6 months<sup>4</sup>. However, how do we manage the patient during this period? Can physiotherapy help in recovery? The purpose of this case report is to present the clinical and photographic evaluation and management of a woman who suffered a facial trauma resulting in mandibular condyle fracture with angulation and luxation. One-year follow-up results are also presented.

**Case report:** A 23-year-old woman attending physiotherapy sessions two weeks after having undergone emergency surgery of a mandibular right condyle fracture after falling from a bicycle. The surgeons used a preauricular and cervical approach (Risdon) in order to perform a condyle replacement and osteosynthesis fixed. Initially she presented right facial palsy with complete paresis of the frontal branch and upper buccal part of the facial nerve, and a light paresis in the zygomatic branch. The marginal and the buccal lower branches are preserved.

**Discussion:** Even though total spontaneous recovery timing is estimated to 6 months, patients generally do not have any medical support or follow up assistance during that period. Patient education and management of expectations are crucial. Rehabilitation goals must be centred on individual functional, aesthetic and emotional levels<sup>5</sup>. Patients experience fears and concerns about their recovery and anxiety regarding the management of the injury, which negatively interfere and affect their daily lives<sup>6</sup>. Physiotherapy intervention by means of rehabilitation techniques and patient education can aid this process.

**Conclusion:** It seems that physiotherapy can help patients to assume greater control in their own recovery, resulting in an improvement of the physical function, an increase in self-esteem, personal satisfaction and better quality of life.

### Publications:

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### Biography:

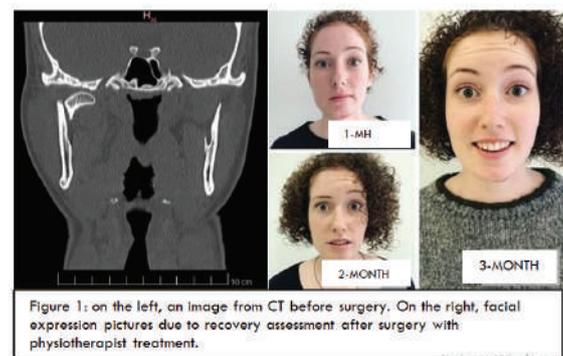


Figure 1: on the left, an image from CT before surgery. On the right, facial expression pictures due to recovery assessment after surgery with physiotherapist treatment.

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France



Cristina Molas-Ferrer is a physiotherapist from Vic (Barcelona) experienced in cranio-facial treatments and rehabilitation. She is working in her own clinic, as well as in primary care and cooperating with local associations whose aim is to improve quality of life of regional population based on territorial needs and with a centered person approach. As a translational researcher, she is collaborating with the research teams in real virtual rehabilitation programs for the Universitat Politècnica de Catalunya.

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**Notes:**

November 18-19, 2019 Paris, France

## Development of a Supervised Exercise Program for Immigrant Women: Feasibility Study of a Practical Intervention in a Physiotherapy Setting

Stephanie Heinecke Thulstrup<sup>1</sup>, Stine Petersen<sup>1</sup> and Lars Morsø<sup>3</sup><sup>1</sup>Fysio Danmark Odense, Denmark<sup>2</sup>University of Southern Denmark Odense, Denmark

**Background:** Immigrant women are increasingly experiencing mental and physical health problems and social vulnerability is common among this group. While Denmark is facing growing inequality between Danish women and immigrant women in relation to exercise and health, research on interventions and targeted exercise programs for immigrant women is generally limited despite their increasing relevance.

**Methods:** Employing an exploratory design, this study aimed to test the feasibility of a physiotherapeutic supervised exercise program developed to increase health and wellbeing, and motivate to a healthier lifestyle. An important aspect of the study was involving the women in developing the program. After the completion of baseline focus-group interviews, physical-strength tests, and a questionnaire, there was a 12-week supervised training period based on physiotherapeutic principles. The training was followed up by reinterviewing and retesting the participating women.

**Results:** 29 women were recruited in the training program in January 2018. 27 of the women attended the baseline testing. Ten women who were baseline tested attended follow-up. Most women were Somali, but there were also women from Bosnia, Iran, Pakistan and Afghanistan. The women's average age was 51.1 years. Their mean body mass index was 34. On average, the women had 4.6 children. Among the included ten participants, the attendance rate was 70%. Based on the women's statements from the evaluation, they gained knowledge about their bodies, a healthier lifestyle, and awareness of the importance of active living.

**Conclusions:** This study indicates that it is possible to recruit immigrant women and develop an exercise program that motivate and maintain them. This study demonstrated the importance of involving the women in the development of such a program and revealed important factors such as privacy, a local setting, and trust towards physiotherapists, when offering a training program for immigrant women.

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5. Oza-Frank, R., & Narayan, K. M. (2010). Overweight and diabetes prevalence among US immigrants. American journal of public health

### Biography:



Stephanie Heinecke Thulstrup is working as a physiotherapist with a master's degree in Public Health in a clinic in Denmark since 2014. As the world was facing the main refugee crisis in 2015, Stephanie Heinecke Thulstrup wanted to handle and to develop a program to provide a healthier lifestyle for immigrant women. The program has succeeded and since 2018, Stephanie Heinecke Thulstrup is working on a framework and collaboration including municipality, doctors and private physiotherapists to conduct a long-term system to offer an exercising program for immigrant women.

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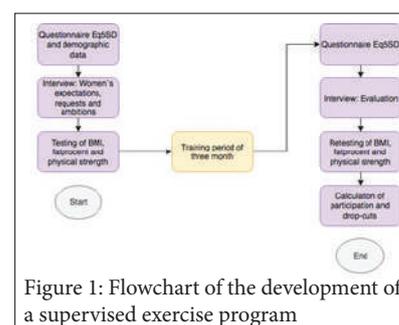


Figure 1: Flowchart of the development of a supervised exercise program

## Strategies on Dealing with Non- Compliant Patients with Chronic Pain: An Applied Behavioral Analysis Approach on Fear Avoidance

Jihan Amr Hussein El Sokkary

University of Montana, UAE

Non-compliance with prescribed treatment is an important cause of delay of recovery of patients. Researchers have reported that fear avoidance has been a known reason for non-compliance with patients with chronic pain. This behavior can be a challenge for therapist for there is no one way to deal with this. However, the selection of which technique to implement for a particular patient should be guided by information gathered about the particular patient and the possible reason(s) for the non-compliance. The purpose of this presentation is to provide strategies to understand and address non-compliance of patients due to fear avoidance with the use of applied behavioral analysis. Some strategies that will be discussed are how to 1) identify the cause of the behavior 2) break vicious cycle 3) build behavior momentum. In this context, the function of the behavior is defined in terms of its maintaining consequences and interventions are then designed to target those consequences.

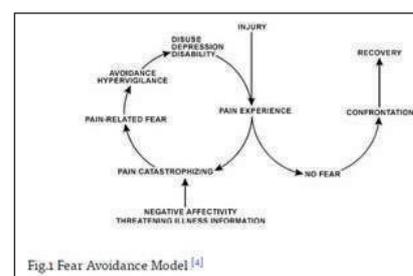


Fig.1 Fear Avoidance Model [4]

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### Biography:



Jihan Amr Hussein El Sokkary a licensed Physiotherapist in the Philippines and Dubai has her expertise in musculoskeletal, orthopedic, pediatric and behavioral therapy. She is currently taking her Doctorate Degree in Physiotherapy and Rehabilitation Administrative Certification both from the University of Montana. After graduating from Physical Therapy school on year 2015, Jihan worked as a Musculoskeletal and Orthopedic PT. At the year 2017, she was able to open up her own physical therapy clinic - Motions Venture Physiotherapy, her clinic specializes in pain management and improvement of mobility. Jihan also worked as a faculty member in 2 esteemed Universities in the Philippines wherein she teaches her expertise in the field of Neurology, Pain and Sports Management. She recently attained her license in Behavioral Therapy on March 2019. She is an active member of the Philippine Physical Therapist Association and is a member of its Pediatric, Neurology and Clinical Education Sigma.

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Effect Of Elastic Band Resistance Exercise On Kyphosis, Back Extensor Strength And Hand Grip Strength In Prevention Of Osteoporotic Vertebral Fractures In Postmenopausal Women

**Manish Rana**

Loughborough University, UK

**Statement of the Problem:** Postmenopausal women often develop Osteoporosis, have low bone mass which results in increasing the bone fragility and its susceptibility to fracture, vertebrae are one of the most common sites for these fractures. Apart from pain and trauma, vertebral fractures result in compromised mobility and balance, bone deformities, height loss, increased risks of fall, diminished quality of life.

The purpose of this study was to evaluate effects of literature supported home based elastic band and postural exercise programmed as an intervention for reducing the risks of vertebral fractures (BES, spinal kyphosis, hand grip strength) in post-menopausal women. The study adopted a quantitative approach to examine the effect of elastic band resistance exercise on kyphosis, back extensor strength and hand grip strength in the prevention of osteoporotic vertebral fractures in post-menopausal women. Research had shown that resistance and postural exercises have improved the above parameters and while vertebral fractures has been a global problem, relatively little attention has been given in the literature about their prevention. The exercise group underwent eight-week of intervention of strength and postural training exercises. Data was analyzed using IBM SPSS software. Results for exercise group showed a decrease in kyphosis and increase in hand grip strength and back extensor strength in line with previous research however, not to a significant extent. Reasons of insignificance were attributed to the short span of intervention and small sample size. The limitations, implications and possible directions for future research were also discussed.

### Biography:



Manish Rana is a High-performance professional with rich experience in Physiotherapy, Sports Science & Sports Management. He has been associated with some Indian Paralympic Athletes who have won medals in World Championships, Asian Games. He was responsible for managing them during their in season and off season training, periodization, and extracting optimal performance. He has a vast experience of working in hospital with both in-ward patients and out-ward patients and have treated a majority of orthopedic, musculoskeletal and neurological patients which included, but not limited to, Sport Injury cases, soft tissue injuries, Pre- and Post-Joint Replacement cases, Stroke, Parkinson's, Multiple Sclerosis, Cervical and Lumbar Stenosis

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### Notes:

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## The effectiveness of the use of gypsum and some methods of physical therapy to rehabilitate those injured by burns of the arm after the cultivation of the skin

Ayad Omar

University of Tripoli Libya, Libya

**Statement of the Problem:** there are a lot of cases that hesitate to the department of physical therapy of different ages due to accidents of burns of multiple causes and varying degrees for some burns in the second and third degree arm that were use of primary splints for people with burns and maintain them to access treatment with the least possible distortions due to burns. Arm after skin transplantation, through which he reached positive results. This led the researchers to carry out this study in order to achieve more effective and less effort.

**The purpose of this study:** to identify the following: Effectiveness of gypsum on burn patients for those who underwent skin transplantation in the upper limb arm.

**Methodology:** the researchers selected some cases of burns in the Department of Physical Therapy at the Hospital of Burns and Plastic Surgery Tripoli, who were implanted skin in the arm in a deliberate way. The number of burns (9) was selected, they were aged (3-9) years according to intentional method.

**Findings:** the existence of statistical differences between the pre and post measurement of the research sample in the kinetic range of arm angle divergence. The rate of improvement is 33% which is very high. There are statistically significant differences between the pre and post measurement of the research sample of the hand grip strength in the first stage which is a high percentage. There are statistically significant differences in the second and third phases of the pre and post measurement with an improvement rate of up to (11%, 18%) in favor of telemetry. There are statistically significant differences for the second and third phases and in favor of the telemetry with an improvement rate that reached between (48%, 56%) of the grip strength. There are statistically significant differences, which is the lowest percentage in the last stage four by an improvement (6%) for the divergence of the angle of the elbow. Recommendations: conduct scientific research to rehabilitate burns for different ages and. encouraging therapists to learn how to use full gypsum and deal with these injuries in all physiotherapy centers.

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Hip and knee muscle strength in male and female with CLBP compared to healthy individuals

**Atefeh Rahimi**

University of Social Welfare and Rehabilitation, Iran

**Background:** Chronic Low back pain (CLBP) is one of the most common musculoskeletal disorders, so that affecting more than 80% of people in their lives (1). Previous studies found a link between LBP and hip muscle strength (2). Lumbopelvic-hip- knee complex is an important biomechanical chain which its muscle strength may vary by LBP (3-5). Therefore, the aim of this study is to examine the associations of lower Extremity strength and chronic low back pain (CLBP) and whether this association is modified by sex.

**Material and Method:** Participants included 20 patients with chronic LBP (10 men, age (38.25±8.7 years), height (168.1 ± 8.6 cm) and weight 67.8 ± 9.3 kg)) and 20 healthy (10 men, age (36.35± 4.5) height (170.15 ± 8.4 cm) and weight 62.5 ± 7.8 kg)). Hip and knee muscle strength were measured using a handheld dynamometer. Data analysis was conducted by multivariate analysis of variance (MANOVA) to compare the muscle strength of hip flexor, extensor, abductor, and knee flexor and extensor between CLBP and healthy in males and females.

**Result:** In the most of subjects with CLBP, muscle strength of lower extremity was less than healthy subject. But only in female subjects weakness was significant statistically. In female group right hip extensor (P=0.005), right hip flexor (P=0.001), left hip extensor (P=0.021) and right knee extensor (P=0.008) muscle strength of LBP were less in comparison with healthy females.

**Conclusion:** Females with CLBP showed more weakness of hip and knee muscle strength than healthy females, while there are not any significant differences between muscle strength in male with and without LBP. Therefore, gender specific design of strengthening exercises interventions for hip and knee to improve CLBP should be explored.

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### Biography:



Atefeh Rahimi has her expertise in physiotherapy and passion in improving the health and wellbeing. Her findings on muscle strength and biomechanics of lower limb in men and women with chronic low back pain create new pathways for improving healthcare and treatment of people with low back pain with focus on gender specify.

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2<sup>ND</sup> GLOBAL CONGRESS ON  
**Physiotherapy, Physical Rehabilitation and  
Sports Medicine**

NOVEMBER 18-19, 2019 PARIS, FRANCE



POSTERS

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Effectiveness of spa treatment of lumbar degenerative disc disease

Monika Sobolak<sup>1</sup>, Przemysław Minta<sup>2</sup> and Małgorzata Fortuna<sup>1</sup>

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<sup>2</sup>Academy of Physiotherapy in Wrocław, Poland

**Introduction:** In patients with low back pain (LBP) defense against the pain and the associated stress provoke significantly destructive emotional factor, which determines an increased resting tension of anti-gravity muscles, which in turn leads to their weakness, limitations of strength and excessive fatigue with all its consequences. The aim of the work was to determine the effectiveness of spa treatment in LBP by using the indirect, apparatus method for assessment of muscle strength of knee extensors and with using direct method which is the Visual Analogue Scale (VAS).

**Materials and methods:** The study involved 22 men and 19 women (age 45-55 years) directed to 24-day spa treatment because of chronic LBP. On the first and last day of therapy Kistler force sensor was used (to measure the maximum isometric strength of knee extensor) and scale VAS for evaluate the pain which is related with LBP. In addition, on the last day of the stay, patients were asked to determine the effectiveness of the therapy.

**Results:** The analysis of the results has not shown the statistically significant influence of spa therapy on the pain and average strength of knee extensors in both men and women. In the entire study group, along with the increase in pain, the strength of the knee extensors diminished. Women, at the beginning of the stay, were characterized by average relationships between knee extensors and pain. At the end of the stay in women in the left limb, the strength of correlation decreased to poor, while in the right limb it increased to high at a statistically significant level. Almost half of the patients (48.8%) reported no improvement in health at the end of the spa treatment.

**Conclusions:** Comprehensive spa treatment does not affect the maximum isometric strength of the knee extensors. The spa treatment did not show any effect on the severity of pain in assessment by using the VAS.

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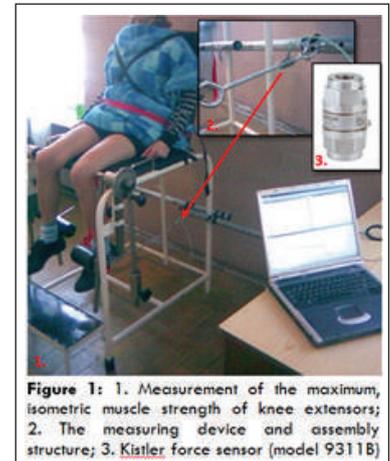
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### Biography:



Monika Sobolak has been working as a senior lecturer at the Department of Physiotherapy at the Faculty of Natural Sciences and Technology of The Karkonosze University of Applied Sciences in Jelenia Gora (KPSW in Jelenia Gora) since 2005. Her teaching experience applies in particular to electrotherapy and spa treatment. She completed her doctoral studies and defended her doctoral dissertation at the University School of Physical Education in Wrocław.

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**Figure 1:** 1. Measurement of the maximum isometric muscle strength of knee extensors; 2. The measuring device and assembly structure; 3. Kistler force sensor (model 9311B)

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Increasing Sense of Ownership in stroke patients using Haptic enhanced VR system for fine movement impairment

**Samirah altukhaim**

Physiotherapist in Amiri Hospital Kuwait, PhD student in Reading University, UK

The use of Virtual Reality in rehabilitation of stroke patients is considered one of the vital therapeutic approaches. However, numerous studies have indicated that lack of body awareness can significantly reduce the effectiveness of this approach. According to Padilla et al. (2010), the effectiveness of VR in rehabilitation of stroke patients primarily relies on the sense of the user, or feeling of one's self to be there in the virtual environment, rather than on the real place. Two aspects impact this body awareness; the sense of agency (SoA) and sense of ownership (SoO). Sense of agency is a subjective awareness of initiating, executing, and controlling one's own body movements. Sense of ownership is the sense that one's own body is the source of sensations. The next project will be seeking how to increase the sense of ownership in stroke patients using Haptic enhanced VR system. In a study, 'Music Upper Limb Therapy—Integrated: An Enriched Collaborative Approach for Stroke Rehabilitation' conducted by Preeti Raghavan and his colleagues, it was found that using group music of about forty-five minutes twice a week for six weeks on stroke patients significantly improved their upper limb sense of ownership and as a result there was improvement in the motor impairment of the upper limb (Raghavan et al., 2016). Another study done by Giorgia Tosi suggests that restoring body representation in the brain can help to recover motor coordination in stroke patients. The rehabilitation process involves the patient observing the reflection of his body with an intact limb while hiding the defective one. The study concluded that the mirror induced some sense of ownership to the impaired hand hence encouraging the patient to manipulate it (Tosi et al., 2018). This study seeks to stimulate similar results using haptic enhanced VR system. If the experiment proves our approach can increase the SoO, we will apply the paradigm to stroke patients with some modifications.

This study will be conducted on 30 healthy right-handed subjects. It will be preceded by a pilot study on three subjects to determine its conditions and efficacy. The experiment will focus on the hand movement flexion and extension (open and close) of the impaired limb either actively by the person movement or passively by the functional electrical stimulation (FES). FES is a mechanism that uses low-energy electrical pulses to artificially generate movements in paralyzed individuals (Rushton, 2003). FES utilizes special equipment that applies small electrical charges to muscles of weak or paralyzed patient's due to damaged spinal cord or brain. The electrical charges stimulate the muscles to make their right movement. Unlike other studies which concentrate on the proximal part, this study will focus on the distal region; hand and fingers. An increase in the SoO will be measured by the likelihood of the patient using it. The study will aim to increase the SoO by integrating the visual information with haptic feedback. It will have two main objectives;

- To improve fine motor skills after stroke by using haptic Enhanced VR system.
- To measure the sense of ownership on the affected hand by using a visual detection.

### The hypothesis is;

- The brain will integrate proprioception and visual information. This will lead to stronger sense of ownership.

### Experimental flow

The participant will sit comfortably on a chair with back support placing both hands on a table. The right hand will be holding a silicon ball; this ball will be inflated and deflated. The left-hand index finger will be on a button of the keyboard so they can press it according to the task. An oculus rift will be worn to immerse the participant in the virtual environment. The experiment will involve two tasks, as described below. The first task will require the participant to press the button in the left hand as soon as he spots light on the virtual hand. Pressing the button will make the light to disappear. The reaction time will be measured by getting the time between when the light appears and when the button is pressed. The study hypothesizes that the shorter the reaction time, the higher the sense of ownership (Aizu, Oouchida and Izumi, 2018).

The second task will be divided into two phase: In the first phase the participants will be asked to close or open the hand actively. Basically, they will be the ones responsible of opening and closing the hand. A three combination of feedback will be collected.

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

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The second phase the movements will be done passively using functional electrical stimulation (FES machine will influence the movements). Different electrodes will be applied to the extensor digitorum communis, abductor pollicis brevis, and extensor pollicis longus (Makowski et al, 2014). These muscles play a vital role in the opening and closing of the hand.

## The entire exercise will involve three combinations of feedback:

- Visual information (either the same or different from the intended movement)

Motor intention (subject imagination of hand movement either closing or opening the hand)	Haptic feedback (inflating or deflating the ball)	Virtual feedback (from the virtual hand either opening or closing)	Kinematic changes (hand movement)	Sense of ownership
Hand closing	The ball is inflated	Hand closing	Hand closing	High sense of ownership
Hand closing	Ball deflate	Hand closing	Hand closing	Low sense of ownership
Hand closing	Ball deflate	Hand opening	Hand opening	No sense of ownership
Hand opening	Ball deflate	Hand opening	Hand opening	High sense of ownership
Hand opening	Ball inflate	Hand opening	Hand opening	Low sense of ownership
Hand opening	Ball inflate	Hand closing	Hand closing	No sense of ownership

•Haptic information (feeling of the pressure of ball expanding)

•Kinematic changes of the hand.

There will be different conditions; for each condition, we will see if the SoO will increase or decrease and test the best condition on healthy participants. The table below summarizes some conditions we anticipate. There are many other conditions to be tested (Table 8). The main aim of this task is to feed the mind with different combinations of feedback until we obtain the best match that can give us a higher sense of ownership. Once this match is discovered, we can apply it to stroke patients with some modifications. Even though this experiment is expected to yield positive results, there are certain challenges yet to overcome like how to know what the participant is thinking.

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## Biography:



My name is Samira Altukhaim, from Kuwait. My background is physical therapy and I am interested in neurology rehabilitation, especially stroke patient. I have almost 10 years of working experience with patients in a general hospital in Kuwait called Amiri Hospital. I have graduated from KUWAIT University since 2009 with the licence of physiotherapist. After that I have accomplished My Master degree in the UK at Oxford Brookes University 2017. And now I am pursuing my PhD in the UK at Reading University, so now I am a second year PhD student focusing in technology such as Virtual Reality to figure out a new approach for rehabilitating stroke patients with upper limb impairment.

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## The relationship between the level of exercise tolerance, physical fitness and age as well as rehabilitation training in women over 60 years of age

Małgorzata Fortuna

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**Introduction:** Currently, it is believed that the decline in physical activity may contribute to a reduction in exercise tolerance and physical fitness. The importance of rehabilitation training to maintain proper control of exercise tolerance and physical fitness is underlined. The aim of the study was to assess the relationship between the level of exercise tolerance, physical fitness and age as well as rehabilitation training in women over 60 years of age.

**Materials and methods:** The study involved 106 women (60 women doing rehabilitation training and 46 non-training women) aged 60-89. In order to perform screening tests for exercise tolerance and physical fitness, a 6-minute walk test and a short-term battery test (SPPB) were used.

**Results:** There was no relationship between the age of active women and the level of functional fitness and physical tolerance. The relationship between the age of inactive women and their physical tolerance was also not observed. While there was a relationship between the age of inactive women and the level of functional fitness ( $p = 0.003$ ), it was noted that there are no significant differences in the tolerance of physical effort and physical fitness between the group attending rehabilitation training and the non-exercising group. Only the difference in exercise tolerance was noticed in the group of women aged 85-89. Better results were obtained by women using rehabilitation activities ( $p = 0.008$ ).

**Conclusions:** There is a relationship between the level of exercise tolerance and rehabilitation training, especially after the age of 85 in women. Daily physical activity is important on one's own. Rehabilitation training is important in maintaining a high level of physical fitness in the aging process. Rehabilitation training should be individually selected to bring benefits to the elderly.

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### Biography:



Małgorzata Fortuna is senior lecturer at Karkonosze College in Jelenia Góra (KPSW) State Higher Education Institution in Poland. Her teaching experience concerns human physiology, physiology of physical exercise in patients and healthy people. She has a lot of experience with the creation and guide of trainings and with the control of adaptive changes. She taught with Erasmus program in: Lithuania, Kauno (2009), Turkey, Ankara (2009), Bulgaria, Plovdiv (2010), Hungary, Miskolc (2010), Estonia, Tallinn (2010), Czech Republic, Usti nad Labem (2011) and Olomouc (2018), Portugal, Castelo Branco (2018), Spain, Almeria (2019). She is the author of many scientific papers including books:

- 1 The foundations of forming and controlling oxygen – based and oxygen – free effort tolerance
- 2 Health – related training in selected heart diseases

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

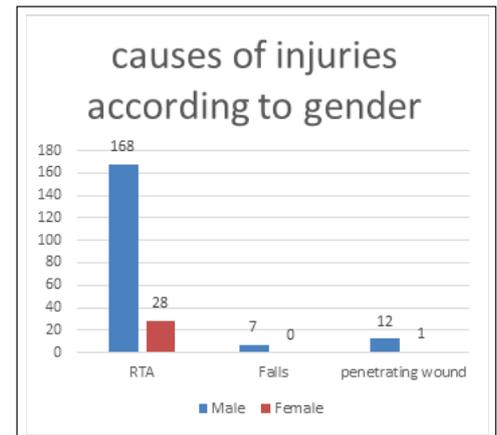
November 18-19, 2019 Paris, France

## Traumatic Spinal Cord Injury (TSCI) in King Fahd Medical City, An Epidemiological Study

Saeed Alshahri, Amal Alshehri

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TSCI is a disastrous event & is a severe problem for society, individuals, family & community as it leads to high rate of mortality, disability [1]. Around 250000 to 500000 patients annually suffering from TSCI around the world [1]. majority of patients with TSCI are young men between 20 to 30 years of age and road accidents are the leading cause of injury worldwide [1]. The characteristics of spinal cord damages are made in accordance with American Spinal Injury Association Impairment Scale (ASIA). These include paraplegia or tetraplegia and complete or incomplete according to location of injury and completeness of cord damage. The highest incidence of TSCI in Saudi Arabia was reported due to RTA [11-13]. Limited studies in Saudi Arabia (Alshahri 2008-2012 & Dr. Al-Jadid 1988-2010 )showed the accurate incidence of TSCI and examine the characteristics and causes of TSCI in PSMHC. Our target of study is KFMC which is the only Ministry of Health (MOH) Hospital that provides acute holistic rehabilitation services to referred patients through an interdisciplinary rehabilitation program. It provides a major portion of the medical services offered in Riyadh city in order to help in the development of TSCI primary prevention strategies



### Aims and hypothesis

- Our study aims to estimate the characteristics & causes of TSCI at King Fahad Medical City (KFMC) in Riyadh city in order to hypothesize strategy for primary prevention of traumatic spinal cord injury.

### Publications:

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### Biography:



Saeed Alshahri is a consultant of NeuroRehabilitation at Prince Sultan Medical Military City. He is the program director of physical Medicine and Rehabilitation at the Prince Sultan Medical Military City. He formerly worked in Saudi Arabia as lecturer/Consultant. After graduating from the University of King Saud in 2004, he specialized in NeuroRehab in Australia, and obtained a fellowship in NeuroRehabilitation from the Royal Australasia College of Physician. He also completed his fellowship from the Australian college of medical administration. His main research areas are epidemiology and pathology of Traumatic Spinal Cord Injury in Saudi Arabia.

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Blood Flow Restriction Training Improves Pain and Function in Chronic Regional Pain Syndrome: Two Cases

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**Introduction:** Recently published studies denote the strength and functional gains achieved with low work load and Blood Flow Restriction Training (BFRT). To achieve maximum benefit, a noxious stimulus via pressurized cuff is applied to a limb changing blood flow and muscular metabolic demand. Emerging evidence suggests the use of pain exposure for CRPS, however, to this date no studies have examined the benefit of BFRT for the treatment of CRPS. The purpose of this case study is to present two cases of CRPS treated with BFRT with remarkable improvement in pain levels and function.

**Methodology:** A 46 year old female patient diagnosed with patellar tendinosis and CRPS of the area, participated in two years of PT without significant improvement or change in pain level. At evaluation, pain on the Numeric Pain Rating Scale (NPRS) was 8 of 10. She could ambulate 2 blocks with a brace donned and could not tolerate stair negotiation. A 31 year old female patient diagnosed with CRPS from tearing of her right posterior cruciate ligament presented non-operatively with pain of 9 of 10 on the NPRS. At evaluation, function was limited to ambulation of 1 block and inability to negotiate stairs. She wore hinged braces bilaterally and ambulated with two straight canes. Both patients underwent 3 sessions of BFRT at 80% limb occlusion pressure; three sets of 20/10/10 repetitions were performed for long arc quadriceps, quadriceps setting, standing heel raise and straight leg raise.

**Findings:** At discharge, both patients had a 90% improvement in pain level. Case one ambulated 8 blocks without bracing and negotiated 5 steps reciprocally. Case two ambulated without bracing or assistive device for 1 mile and negotiated 5 steps with reciprocal pattern.

**Conclusion and Significance:** Successful research exists for pain exposure therapy and CRPS. Tightness of the BFRT cuff is an intense stimulus and may contribute to this hypothesis. Microvascular, oxygenation and muscular changes are present with both BFRT use and the disease process of CRPS. Despite the success of these two cases, more investigation is required to determine long term BRFT use and safety with this population.

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### Biography:



Bethany Ridenhour PT, DPT, PCS is a senior physical therapist at NYU Langone's Orthopedic Center where she provides treatment of orthopedic injuries in an active and athletic population. Bethany holds a Doctorate in Physical Therapy from New York University and is board-certified in orthopedic physical therapy by the American Board of Physical Therapy Specialties. She is a Certified Strength and Conditioning Specialist and is also a Certified Ironman Coach. A former collegiate basketball player, Bethany is an avid cyclist and triathlete, participating in multiple Sprint, Olympic, and Half Ironman distance triathlons, the NYC marathon, and international cycling events. Bethany serves as a clinician at NYU Langone's Running Lab.

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E-POSTERS

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Robotic Rehabilitation with Exoskeleton and Electrostimulations in a patient with post-stroke hemiparesis (a clinical case report)

Ivet Koleva<sup>1,2</sup>; Borislav Yoshinov<sup>3</sup>, Radoslav Yoshinov<sup>4</sup>

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According to the World Health Organization [3,5], stroke is one of the most frequent conditions, leading to a serious disability and reduced quality of life. According the White Book (2018), Rehabilitation is a functional therapy, based on a detailed functional assessment [4]. Neurorehabilitation (NR) is an interdisciplinary thematic field between Neurology, Neurosurgery, Physical and rehabilitation medicine [1]. Gait recovery is important element in NR-clinical practice, essential for the independence of patients in activities in daily living (ADL) [1]. Our objective was to emphasize the potential of modern NR-methods: exoskeleton and robotic rehabilitation, in combination with the traditional for our country electrostimulation. We present the clinical case of a post-stroke patient, female of 50 years, with Arterial hypertension and Diabetes mellitus. Patient arrives in our PRM-clinic 45 days after an ischemic cerebro-vascular incident in right arteria cerebri media. For functional assessment before rehabilitation, we applied detailed neurological and neurofunctional exam: she had a left central hemiparesis, motor functions grade III-IV according Brunnstrom classification, spasticity ++; left hemihypoesthesia; muscular contractures for left extremities (flexion-adduction-pronation for the upper extremity = hemiparetic hand; extension-pronation for the leg). For treatment, a complex NR-programme with synergic combination of different natural and pre-formed physical modalities was created: physiotherapy with proprioceptive neuro-muscular facilitation; mechanotherapy; balance and gait training; electro-stimulations for the antagonists of the spastic muscles (for the hand and the ankle); ergotherapy (including ADL-training); and robotic NR with a powered Exoskeleton - a cyborg type robot with Hybrid Assistive Limb (HAL) of Cyberdyne systems (fig.1). After 30 days we observed a significant functional recovery: reduction of the muscle weakness, spasticity and contractures; amelioration of balance, gait (with crutches) and autonomy in ADL.

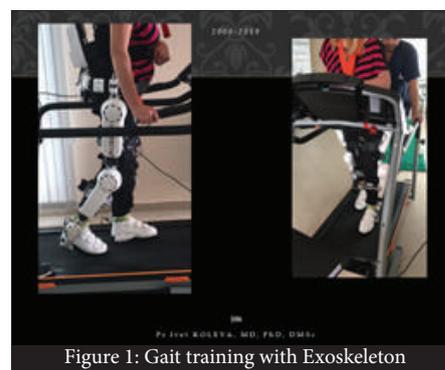
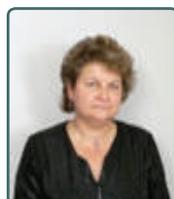


Figure 1: Gait training with Exoskeleton

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### Biography:



From 2012 and actually, Prof. Ivet KOLEVA, MD, PhD, DMedSc works as a professor in Physical & Rehabilitation Medicine (PRM) in the Medical University of Sofia, Bulgaria. Parallely, she is consulting PRM specialist in some hospitals and medical centers in Sofia. She is Medical Doctor (1986) from the Medical University of Sofia, Bulgaria; specialist in Neurology and in Physical and Rehabilitation Medicine / PRM/ (1990 & 1995). She has obtained European Certificate of PRM (2008); and of Senior Fellow of the European Board of PRM (2017). She defended successfully 3 scientific theses: for *Philosophy doctor (PhD) in PRM* (2004); for *Doctor of Medical Sciences in PRM* (2009); for *PhD in Pedagogics* (2013). She is associate professor (from 2006) and Professor (from 2010). She has various publications in national and international journals; and a lot of presentations in national and international congresses and conferences..

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# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

## Case study of a Physiotherapeutic Alternative with Multimodal Combination to Optimize Sensory and Biomechanical Function in the Postoperative Period of a Reconstructive Microsurgery of the Hand

Sandra Prado, Alvaro Cho and Fabio Freire  
Brazil

**Introduction:** Surgical reconstructions of complete hand injuries, especially in the peripheral nerves, can cause multiple complications: poor functional outcomes, sensitivity deficits, impaired sensory and motor integrity. These injuries cause paralysis and muscular atrophy, the most drastic situation in peripheral nerve injuries, in addition to alterations in the somatosensory map. The potential sensory and motor recovery in these injuries will be maximized by early intervention of an either surgical, when necessary, or physiotherapeutical approach.

**Case description and methods:** A 16-year-old male patient was referred to physical therapy after emergency surgical reconstruction of an extensive cut-contusion injury in the volar region of the left wrist caused by a glass door. The exploratory surgery enabled the diagnosis of the complete lesion of the ulnar artery, median and ulnar nerves and all flexor tendons of the wrist and fingers. The exploratory and reconstructive surgery were performed one day after the event and involved: microneurorrhaphy of the median and ulnar nerves and multiple tenorrhaphy of the wrist and finger flexors. In the postoperative period, the patient was kept in a plaster cast for 4 weeks, progressing with good healing of the surgical wound.

Physiotherapy was started 27 days after the accident with a program of 3 sessions per week for 6 months. The physiotherapeutic alternative chosen after a meticulous anamnesis was a combined multimodal therapy: Sohier concept manual therapy consisting of gentle maneuvers to harmonize the biomechanical rhythm of the joint while avoiding overstretching it, activating the circulatory system and favorably influencing the biological balances of the articular and periarticular tissues, leading to an increased range of motion, joint proprioception and the return of sensitivity. Myofascial therapies for the treatment of active fibrosis and the prevention of recurrence throughout treatment, consisting of sliding the conjunctive fascia and promoting venous drainage. Neuro-proprioceptive facilitation with the KABAT method was used for strength and proprioception. Infrared laser was used for tissue regeneration. Biostimulation in deep tissue healing (bone, cartilage and nervous tissue) was used for analgesic and anti-inflammatory action. Red laser was used for soft tissue stimulation, healing and analgesia. Acupuncture and infrared laser were associated throughout the process. Carefully applied bandages were used to protect and limit venous congestion and associated edema, stimulating proprioception, improving range of motion and decreasing muscle spasms.

**Results:** In 5 months of physiotherapy, the patient achieved excellent motor and sensory recovery of the hand, with complete recovery of the intrinsic muscles of the hand. After 6 months, he recovered total amplitude, strength, proprioception and grade 5 active functional mobility (see associated Video)

**Discussion:** The nerve regeneration process is slow (1mm/day in young adults). The consequences of hand injuries are devastating since muscle denervation leads to atrophy. Injuries to the median/ulnar nerve of the wrist may cause Siamese hand-type deformities in which the thenar eminence is flat with the unopposed thumb on the side of the second finger. Secondly, the first interdigital space may contract due to thumb adduction, a characteristic deformity of ulnar nerve injury is the claw hand with hyper-extension at the metacarpophalangeal joints and flexion at the proximal and distal interphalangeal joints of the 4th and 5th fingers. This is a result of the loss of balance between intrinsic and extrinsic flexor and extensor muscles. There is also loss of the distal transverse arch of the hand, which becomes flattened.

Historically, many results reported after nerve repair injury have been considered poor, which has stimulated research on neurobiology, neuroimmunology, stem cell research, and neural conduits.

**Conclusion:** The combined multimodal approach involving Sohier concept manual physiotherapy, conjunctival fascia therapy, proprioceptive neuro-facilitation, red and infrared laser, acupuncture and elastic bandages may be an effective alternative for patients with nerve and wrist flexor tendon injuries. To our knowledge, this is the first record of this combination with excellent results in a situation where traditional approaches are not very effective.

# PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

November 18-19, 2019 Paris, France

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