# Global Physiotherapy Congress

November 17-18, 2016 Atlanta, USA

## E-Posters

Walid Ahmed Ibrahim Saleh Abouelnaga, J Nov Physiother 2016, 6:6(Suppl)
http://dx.doi.org/10.4172/2165-7025.C1.012



# Lymhpocytes differential count and pain response to aerobic training in cancer patients undergoing chemotherapy

**Walid Ahmed Ibrahim Saleh Abouelnaga**
Cairo University, Egypt

**Aim:** Aim of this study is to evaluate the efficacy of aerobic training on lymphocytes differential count and pain in cancer patients undergoing chemotherapy. Methods of evaluation are measurement of the lymphocytes differential count and visual analouge scale.

**Methods:** 40 lung or breast cancer patients undergoing chemotherapy with ages ranging from 35 to 45 years and suffering from cancer related fatigue were divided into two groups. The first study group received the aerobic exercises and cycling (20 minutes session day after day for four successive months) in the form of walking 5 minutes at lowest speed on treadmill as warming up, active phase in the form of 10 minutes cycling and walking another 5 minutes at lowest speed on treadmill for the cooling down, the second group was the control group that was consisted of 20 patients who underwent only chemotherapy and activities of daily living with no aerobic training.

**Result:** Result showed that application of the aerobic training in improving the LDC and decreasing the VAS in cancer patients undergoing chemotherapy had a valuable effects.

**Conclusion:** Aerobic training was effective in improving the LDC and decreasing the VAS in cancer patients undergoing chemotherapy as manifested by the highly significant increases in the LDC and highly significant decreases in VAS.

## Biography

Walid Ahmed Ibrahim Saleh Abouelnaga has completed his PhD from Cairo University. He is a Lecturer in the Department of Physical Therapy for surgery. He is teaching at Cairo university, October 6 University and Masr University for Science and Technology. He has published one paper.

walidabolnaga@yahoo.com

**Notes:**

Hetshri Shah et al., J Nov Physiother 2016, 6:6(Suppl)
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# Global Physiotherapy Congress

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## Effect of tobacco chewing on aerobic capacity and cardiovascular functions among asymptomatic adults

**Hetshri Shah, Tulsi Patel, Dhrashti Patel and Bansari Patel**
Ashok and Rita Patel Institute of Physiotherapy (ARIP), India

Smokeless tobacco has been advocated as a substitute for cigarette smoking. In India, tobacco is used in several forms such as pan, dried leaves, paste, and tobacco with lime. The word Charotar stands for the area of golden leaves. It produces about 75,000-90,000 tone tobacco a year. Prevalence of smokeless tobacco use among adults in India in 2012 is 32.9% male and 18.4% female. Cardio respiratory endurance is a fundamental component of physical fitness. While maximal oxygen uptake is the gold standard for quantifying cardio respiratory endurance, the Three-Minute Step Test (TMST) is a relatively quick and easy test for measuring the cardio-pulmonary fitness and functional endurance. Objective of the study was to find out effects of tobacco chewing on aerobic capacity and cardiovascular function among asymptomatic adults. 100 participants had taken part in this cross sectional study and were divided in to 2 groups. Group 1 included non tobacco chewers and group 2 included tobacco chewers. At the beginning and at the end of the test HR, SBP and DBP were taken respectively for both groups. $VO_2$ max was calculated at the end of the test. Independent t- test of aerobic capacity and cardiovascular function was done at the end of TMST between two groups. We found significant difference in $VO_2$ max, HR, SBP and DBP between tobacco chewers and non tobacco chewers of 0.000 ($p<0.05$).TMST has been found to be effective in measuring functional endurance in tobacco chewers. Here by we conclude that tobacco chewing reduces aerobic capacity as well as on cardiovascular functions.

### Biography

Hetshri Shah has completed her MPT in Cardio Pulmonary Diseases and Intensive Care Unit from Rajiv Gandhi University of Health Sciences, Bangalore. She is an Assistant Professor and In-charge of cardiopulmonary physiotherapy department at Ashok and Rita Patel Institute of Physiotherapy (ARIP), India.

hetshri_physio@yahoo.in

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Ankur Parekh, J Nov Physiother 2016, 6:6(Suppl)
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## The effect of argentine tango training for patient with Parkinson's disease

**Ankur Parekh**
RK University, India

**Introduction:** In this study, subjects were randomly assigned in to two groups of 10 each and one group attended 1-hour sessions per week, completing 20 lessons within 2 weeks of argentine tango training and other group completed kitchen-sink exercises. Balance and gait were evaluated in the weeks immediately before, immediately after, and 2 weeks after the intervention. Both groups significantly improved on the POMA scale. But, however the effect is to be noticed in between the groups.

**Methodology:** In this experimental study using convenient sample technique with 20 Parkinson's patients over a span of 2 week were studied at Parkinson's disease supportive group at Rajkot.

**Results & Discussion:** In this study, out of 20 lessons twice a week, at the end of completion pre score and post score was taken in to consideration. The study has shown no significant difference in effect of argentine tango training on patient with Parkinson's diseases. There is a clear need for additional research using larger sample sizes to examine the potential long-term effects of dance for those with PD.

**Conclusions:** There is no significance difference in the effect of argentine tango training on patient with Parkinson's disease.

### Biography

Ankur Parekh is currently working as an Assistant Professor at School of Physiotherapy, RK University. He has 8 years of clinical experience and 4.5 years of academic professional experience. He has completed his Master's in Physiotherapy from Civil Hospital, Ahmedabad. He is the member secretary of "Institutional Ethics Committee" School of Physiotherapy, RK University approved by CDSCO. He is working as a PG Coordinator, Clinical Training Coordinator since last 4.5 years. He is also the member of board of study at School of Physiotherapy, RK University. He guided more than 20 UG projects and 8 PG projects. He has published 2 researches in national journals and 1 in international journal. He is in the panel of NAAC, RKU. He is certified as Pain Assessment and Management Specialist by IASP. He has obtained certificates from various schools of manual therapy, sports tapping, advanced neuro rehabilitation, soft tissue manipulation, dry needling etc. He even conducted workshops on sports tapping, manual therapy and basic life support.

ankurparekh4387@gmail.com

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Ektaben Soni, J Nov Physiother 2016, 6:6(Suppl)
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## The relationship between body composition analysis and 8 foot up and go test in young old adults

**Ektaben Soni**
Ashok and Rita Patel Institute of Physiotherapy- CHARUSAT, India

**Background:** In India the overall number of the elderly population is growing fast. Young old group consists of the population between 60 to 69 years of age, who have minimum level of disability. Body mass index (BMI) is a simple measure used to characterize a person as being undernourished, normal, overweight and obese. The waist circumference (WC) is useful to diagnose abdominal obesity. The 8 foot up and go test (8FUG), which was designed to measure speed, agility and balance while moving in elderly people.

**Objectives:** To find out reference value of 8 foot up and go test in young old population and to find out co relation between body composition and 8 foot up and go test.

**Results:** Time needed to perform the 8FUG test was 10.37 Sec for young old adults. We found significant correlation between performance variable of 8FUG test and BMI clinically and statically. But we found weak correlation between performance variable of 8FUG test and WC.

### Biography

Ektaben Soni has completed her Bachelor of Physiotherapy from Ashok and Rita Patel Institute of Physiothepy, Changa in 2015. Currently, she is pursuing her Master of Musculoskeletal Science in Ashok and Rita Patel Institute of Physiotherapy.

ektasoni54@gmail.com

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## Prevalence of work related musculoskeletal disorders among building construction workers of Gujarat

**Shivani Patel**
Ashok and Rita Patel Institute of Physiotherapy (ARIP), India

**Background:** Work –related musculoskeletal pain is defined as musculoskeletal disorders that results from a work-related event. Work related musculoskeletal disorders (WRMD'S) are usually work related and it is a common phenomenon among several occupations.

**Aim:** The present study aims to examine the prevalence of WRMD among building construction workers of Gujarat. Activity such as heavy weight lifting, awkward postures, working in same position for prolonged period of time have been associated with risk of developing shoulder and hand pain. There has been no study done in Gujarat on prevalence of musculoskeletal disorders among building construction workers thus this study would like to address this issue.

**Methodology:** This is a descriptive analysis study which includes 100 building construction workers of age group from 18 to 50.

**Result:** The present study has shown high prevalence rate of low back pain (54%), shoulder (48%), upper back (43%), neck (39%), elbow (22%), wrist (18%), knee (13%) and ankle pain (11%).

**Conclusion:** The present survey study concludes that there is more and more pain in lower back, when compared to other regions.

**Statement of Problem:** WRMD's can affect almost all parts of the body in all populations, but building construction workers are more prone to WRMD's due to nature of work. Presently there is a lack of literature which highlights the prevalence and disability among building construction workers due to WRMD's.

**Significance of the Research:** This study aims to determine the prevalence rate of work related musculoskeletal disorders among building construction workers along with distribution of WRMD's in various body region.

### Biography

Shivani Patel has completed her Bachelor of Physiotherapy from Ashok and Rita Patel Institute of Physiothepy, Changa in 2015. Currently, she is pursuing her Master of Musculoskeletal Science in Ashok and Rita Patel Institute of Physiotherapy.

shivanipatel225@gmail.com

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## Accepted Abstracts

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## To compare the effectiveness of low frequency electrical simulation and manual therapy in the treatment of chronic plantar fasciitis for functional improvement in patients with chronic planter fasciitis

**Atul Kumar Singh**
JNU Hospital & Medical College (JNUIMSRC), India

**Aim:** To compare the effectiveness of low frequency electrical simulation and manual therapy in the treatment of chronic plantar fasciitis for functional improvement in patients with chronic planter fasciitis.

**Methods:** Thirty patients with diagnosed chronic plantar fasciitis and fulfilling the inclusion criteria were randomly allocated into two equal groups namely group A and group B with 15 patients each. LFES (low frequency electrical stimulation) protocol was given to group A and Manual therapy protocol to group B. Patients in both the groups were treated 2 times per week for 2 weeks, followed by one time per week for 2 weeks, for a total of 6 visits over 4 weeks. .Visual analogue scale (VAS) and Foot and ankle ability measures (FAAM) were used to find out the effectiveness of the treatment between the two groups.

**Results:** The findings from the present studies showed that significant difference in means of VAS-right now, VAS –past one week when compared post intervention means between the groups and there is a statistically significant difference in means of FAAM when compared post intervention means between the groups.

**Conclusion:** There is a statistically significant improvement in means of VAS-right now, VAS –past one week and FAAM scores when compared from pre intervention to post intervention in both the groups but although low frequency electrical simulation brings better results on Foot and ankle ability measures (FAAM) scale, Manual therapy is more effective in reducing pain as scored using Visual Analog Scale (VAS).

atul.singh13@gmail.com

## Regional interdependence criterion movers and the framework for skill specific treatment progression for the elite thrower

**Carlos J Berio**
Spark Physiotherapy, USA

Regional interdependence is a well-known and mostly understood concept in physical therapy. It's used to differentially diagnose movement efficiency issues in areas of the body distant from a client's main complaint of pain or restriction. Originated by Gray Cook et al, the SFMA is among the most popular tools to analyze the impact of regional interdependence issues as they relate to pain and movement. Sports and orthopedic physical therapists can greatly improve their pattern recognition with tools such as the SFMA but some of the PT-pt communication about the links between 'top tier movement pattern' findings and the applicability for return to sport are less clear. Therapeutic exercise, as it is taught in physical therapy programs, is severely lacking in the movement pattern recognition and the foundational knowledge to assign appropriate movement pattern introduction or hardening for the competitive or semi-competitive athlete. Sports and orthopedic physico treat athletes of many ability levels and a variety of sports. It is not important that you, as a physical therapist, have a deep understanding of every sport injury/restriction you will treat. Where there is a criterion mover (CM) in a sport, the physical therapist is the ideal health care professional to assess how their patient's movement differs from said CM and to design sport skill/movement specific treatment and exercise protocols for a full and restriction free return to play. We will discuss the framework for optimal treatment experience, from eval to full sport hardening, for the elite thrower as well as other competitive mover subsets.

cjberio@sparkphysio.com

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## Effect of self myofascial release through the vertical jump

**Fábio Chittero Boldrini**
Universidade Municipal de São Caetano do Sul, Brazil

**Introduction:** The myofascial release technique is a manual mobilization of tissues, specifically the fascia. But there is a feature in which the individual performs the release itself, self myofascial release.

**Objective:** Evaluate the immediate effect of self myofascial release the lower member of asymptomatic individuals in vertical jump.

**Materials & Methods:** After approval of the Ethics Committee with the number: 46373115.4.0000.5510 were evaluated 17 (male and female), aged between 18 and 25 years old, BMI (normal weight 18.5 to 24.9), submitted to two times, T1 (warming on Exercise Bike and vertical jump) and T2 (warming on Exercise Bike, Self-myofascial Release and later vertical jump) is noted and the highest average of the three jumps performed. The analysis was done with the statistical package GraphPad Prism and the tests assumed a significance level α=5%, using the Wilcoxon test for comparisons.

**Results & Discussion:** In general comparison with average and higher value T1 (p=0.1305) and T2 (p=0.1311), there was no statistical difference. The individuals who started with T1 and T2 later there is significant performance improvement (p = 0.0156), and those who started with T2 and T1 after the data remains (p=0.5703), suggesting that first conduct self release myofascial the benefit could be maintained for an extended time.

**Conclusion:** Self-myofascial Release held at the second stage generates performance benefits, with a given relevant mainly sports.

atul.singh13@gmail.com

## Internet marketing and technological advancements for physical therapists

**Greg Todd**
Physical Therapy Builder,USA

Although physical therapists have massively increased their education levels to DPT, our marketing strategies have been to primarily rely on primary care physicians and specialist to refer patients. Unfortunately that has led to only 7% of patients with musculoskeletal conditions being referred to physical therapist. So where are the other 93%? In this presentation, I show you how I have used social media strategies, my website/blog to drive patients to my 2 facilities. These methods have allowed my practices to have 11 years of consecutive growth, as well as 40% increase in gross revenue YTD from 2015-2016. I also demonstrate the latest technological advancements that I use on a daily basis with patients, which creates an amazing first impression for my patients.

greg@physicaltherapybuilder.com

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## A review of the short form health survey version 2

**Hasan Alkhawaldeh[1], Abdullah Alkhawaldeh[2], Omar ALOmari[2], Mohammed AL Bashtawy[3], Jamal Qaddumi[4], Khaled Waleed Bader[2] and Muwafaq Al-momani[5]**

[1]Jordan University of Science and Technology, Jordan
[2]Jerash University, Jordan
[3]AL al-Bayt University, Jordan
[4]An-Najah National University, Palestine
[5]Al-Hussein Bin Talal University, Jordan

**Background:** The short form health survey version 2 (SF-12v2) is a commonly used measure of HRQOL. But, it has received much less psychometric attention.

**Aim:** The aim of this study is to review research articles that used SF-12v2 survey.

**Method:** In this study, sage data base were searched and 12 articles were revealed using of SF-12v2, sample description, testing reliability or validity, and date of publishing (within the last 10 years).

**Results:** SF-12v2 was used on diverse age groups of participants. Cronbach's alpha coefficients for the tool were ranged from 0.60 to 0.87, which support the internal consistency reliability. The convergent validity of the SF-12v2 was supported in some of the research.

**Recommendations:** Some recommendations were emerged to guide the future research.

atul.singh13@gmail.com

## Low frequency sonophoresis mediated transdermal and intradermal delivery of ketoprofen

**Herbert L Silver**
Mercer University, USA

**Purpose:** The objective of this study was to test low frequency sonophoresis as an active enhancement technology for transdermal and topical delivery of ketoprofen and to optimize ultrasound parameters for delivery.

**Methods:** Sonophoresis was carried out with a sonicator operating at 20 KHz frequency and intensity of 6.9 W/sq.cm (Sonics VCX 500, Sonics and Materials, Newtown, CT). Donor formulation was saturated solution of ketoprofen in 50 percent propylene glycol containing 3.5 mg/ml drug. Vertical Franz diffusion cells were used to study transdermal and topical delivery of ketoprofen in vitro. Permeation studies were carried out on excised hairless rat skin over a period of 24 hours. Ultrasound application time, duty cycle and coupling medium were optimized. Aluminum foil pitting was carried out to confirm acoustic cavitation as the mechanism of enhanced sonophoretic delivery. Transepidermal water loss measurements (TEWL) were performed to measure the extent of barrier disruption following sonophoresis. Confocal microscopy was used to visualize dye penetration through sonophoresis treated skin.

**Results:** Application of ultrasound (2 minutes, 1% SLS coupling medium) significantly enhanced permeation of ketoprofen from 74.87±5.27 µg/sq.cm for passive delivery to 491.37±48.78 µg/sq.cm for sonophoresis. The lag time for delivery reduced from 6 hours for passive permeation to 2 hours for sonophoresis. Drug levels in underlying skin layers increased from 34.69±7.25 µg following passive permeation to 175.04±20.56 µg following sonophoresis. TEWL increased from 31.6±0.02 (passive) to 69.5±12.60 (optimized sonophoresis conditions) indicating disruption of barrier properties. Confocal microscopy images depicted enhanced dye penetration through sonophoresis treated skin hence confirming barrier disruption.

**Conclusions:** Low frequency sonophoresis with optimized ultrasound parameters can be effectively used to actively enhance transdermal and topical delivery of ketoprofen.

herbsilver@gmail.com

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## Effect of speed, agility and quickness on performance of junior tennis players

**Isha Garg**
ISIC-Institute of Rehabilitation Sciences, India

**Aim & Objective:** The purpose of the study was to examine the effect of 4week SAQ protocol on agility and aerobic capacity in junior tennis players.

**Methodology:** Research was carried out on a sample of fifty healthy tennis players from the sports complexes (aged: 14.2±0.9; height: 160.6±6.2cm; weight: 57.3±5 kgs). The players were randomly divided into training group and control group. The training group received four weeks of speed, agility and quickness protocol three days per week and the control group performed their regular training under the direct supervision of the physiotherapist. The pre and post testing for the agility (t-test) and aerobic capacity (cooper test) was done at 0 week and after 4 weeks.

**Results:** The pre-test readings of t-test {training group (11.246±1.09) and control group (10.933±1.093)} and post-test readings were {training group (10.1712±0.93) and control group (10.6848±0.85)} which concluded a significant improvement (0.05). Similarly, with aerobic capacity, training group (24.3152±6.7 vs. 30.1176±8.1) and control group (22.9±6.54 vs. 23.7±6.6).

**Conclusion:** The study concluded that SAQ protocol can improve both the agility and aerobic capacity in tennis players.

garg.isha87@gmail.com

## Role of core stabilization in athletic persons

**J Andrews Milton**
Bethany Navajeevan College of Physiotherapy, India

Clark (2000) reports that adequate core stabilization will improve dynamic postural control, ensure appropriate muscular balance and joint arthro-kinematics around the lumbo pelvic-hip complex, allow for the expression of dynamic functional strength, and improve neuromuscular efficiency throughout the entire kinetic chain. Ferreira et al (2004) stated that transversus abdominis is activated in anticipation of trunk and extremity movement to provide stability of the lumbar spine. They also stated that weakness or delayed activation of this muscle may directly affect local spinal stabilization. Darin T Leetun et al (2004) found that decreased lumbo-pelvic (core) stability has been suggested to contribute to the etiology of lower extremity injuries. John D. Willson (2005) found that leg injuries decrease core stability and vice versa. Anthony B Piegaro found that a combined core stabilization/balance-training program could be used to improve semi-dynamic balance, whereas core stabilization program or balance training program could be used to improve dynamic balance. Injury prevention is a primary goal of every athletic trainer, coach and athlete. Adequate core stabilization will improve dynamic postural control, ensure appropriate muscular balance and joint arthro-kinematics around the lumbo pelvic-hip complex, allow for the expression of dynamic functional strength, and improve neuromuscular efficiency throughout the entire kinetic chain. If the trunk is weak and poorly developed, it results in poor posture resulting in less efficient movements. Core stability mechanisms are: Neural subsystem; active subsystem; passive subsystem; thoraco lumbo dorsal fascia mechanism; hydraulic amplifier mechanism, intra-abdominal pressure mechanism and; foot-ball concept. Clinical assessment methods and core stabilization techniques will be updated.

therapistandrews@gmail.com

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## The L I F T method: Ligament influenced fascial technique

**JoAnn Kovaly**
The L.I.F.T. Method, USA

Creating muscle and fascial function via ligament stimulation was inspired from the Logan Basic Technique, developed by Hugh B. Logan in the early 1900's. The Logan Basic utilizes directional pressure to the sacrotuberous ligament, reducing hypertonicity in the para-spinal musculature. This technique is still widely used within the chiropractic community. Until recently, medical science had regarded the primary role of the ligament system as tissue that attached bone to bone. We now know that the ligaments and fascia do so much more. Scientists, specializing in fascial research, show that the ligament system contributes proprioceptive information to the nervous and fascial systems and those ligaments have ten times the mechanoreceptor feedback to the brain than the muscles. New information shows ligaments contain Ruffini Corpuscles and free nerve endings, all of which supply the brain with information. The fascia and CNS use the ligaments to monitor and influence muscular tonicity and function. Once the fascial tensions are reset with ligament stimulation, neuromuscular function testing lets the practitioner know what and where the system is not functioning correctly. The tests are ingenious in that they help systematically break down the often complex myofascial lines / meridians. With fascial length and muscle function testing, therapists can see what part of a fascial line is restrictive by taking away all compensation patterns. If a muscle is just "released" but is not functioning neurologically, the aberrant tension patterns will return. With extensive research, The L.I.F.T. Method: Ligament Influenced Fascial Technique was developed. A vast background of methodology such as neuromuscular reeducation techniques, Pilate's principles, fascial tensegrity and function, myofascial testing, muscle testing at end range for neurological feedback has all contributed to the evolutionary L.I.F.T. Method. This approach not only restores fascial length, but restores the muscle's ability to function on demand by addressing the fascial component of muscle structure. LIFT testing and treatment provides measurable pre and post treatment proof of the positive changes produced. The neuromuscular reeducation while utilizing the ligaments creates tensegrity change that lasts! LIFT brings all of these concepts together allowing the therapist to treat patients quickly and effectively. LIFT, an extremely gently manual therapy technique even effects the autonomic systems allowing the parasympathetic system to restore relaxation.

JoAnn@LIFTmethod.com

## Evidence based role of taping in physiotherapy

**P Bhaskar Reddy**
King Khaled Hospital, Saudi Arabia

The Kinesio taping method is a definitive rehabilitative technique that is designed to facilitate the body's natural healing process while providing support and stability to muscles and joints without restricting the body's range of motion as well as providing soft tissue manipulation to prolong the benefits of manual therapy administered with clinical settings. Its latex free, non-allergic, water proof and can be applied pediatric to geriatric. Successfully treats a variety of orthopedic, neuro-muscular, neurological and other medical conditions.

bachi_physio@yahoo.com

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## NIV (Non-invasive ventilation) - Extended scope of practice for respiratory physiotherapists

**Palak Brahmbhatt Shah**
Max Super-specialty Hospital, India

The role of a Respiratory Physiotherapist is vital for Patients with Respiratory diseases like COPD, ILD, Asthma, Lung Cancer, Respiratory Failure by interventions like Maintaining Oximetry, O2 therapy, Teaching Inhaler techniques, Bronchial hygiene techniques, Chest PT, 6MWT, Mobilization etc. But still NIV remains underutilized by Physiotherapists. NIV has been evolved from Big Machines (in 1950) to Smart Devices (in 2000). It is a provision of Assisted Ventilation without Endotracheal Intubation. Studies have shown Underutilization of NIV & Low rates of perceived efficacy as Major findings. Reasons for Low utilization like Physician's Lack of knowledge, Equipments not appropriate, Respiratory staff inadequately trained & poor previous experience are major among others. There are many studies which prove the benefits of NIV. Strongest evidence is in COPD and Acute Cardiogenic Pulmonary edema where NIV prevents Intubation. NIV Use Improves Chances of Survival in Acute Respiratory Failure. It tends to reduce mortality in ICU, hospital & reduces need for therapeutic interventions. I will be discussing in this session Basics of NIV – Patient selection/ Indications/ Contraindications/ Settings & Parameters/ Initiation/ Optimization/ Goals of NIV, the different devices & interfaces available, monitoring of patients on NIV, criteria for NIV success or failure- identification/ causes/ rectification, common problems & solutions of using NIV and clinical evidence on NIV.

dr_palak4324@yahoo.com

## Effect of acupuncture on upper trapezius muscle spasm- A review study

**Saadallah M Halimi**
Halimi & Kabbara Rehabilitation Center, Lebanon

The aim of this literature review is to compare results of different studies with clinical data on the effects of acupuncture in reducing spasm of upper trapezius muscle, whatever the cause of this symptom is. Assuming biochemical principle, that muscle spasm is due to accumulation of lactic acid through exaggerated anaerobic work due to nervous or mechanical pain, an improvement of blood supply would eliminate an excessive deposit of lactates, a significant flow of oxygen would prevent such accumulation. This decreases pain, muscle spasm & increases painless range of motion. Various studies have shown that acupuncture has a positive effect on one of the links in the chain, & consequently could be used as first attempt treatment to reduce muscle spasm. Pathologies (Cervical dystonia, non irradiating cervical neck pain, neck & shoulder stiffness, fibromyalgia, and work related trapezius myalgia) & techniques (Needling depth, needle stimulation and selected points) were varied, but produced similar results concerning muscle spasm. This confirms that local & lasting effect could be sought through several acupuncture techniques, & the techniques that couldn't prove their utility aren't respecting TCM principles. Testing a protocol uses Photoplethysmographic, EMG, Cervical Range of Motion, laser Doppler before / after medication intake (muscle relaxant) & compare outcomes with those before / after deep needling with manipulation. Improvement of local blood flow, oxygenation, and stiffness confirms usefulness of acupuncture, which could serve as a "guideline" for the treatment of upper trapezius muscle spasm & impact on patient's quality of life.

saedhalimi@yahoo.com

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## Effect of diaphragmatic breathing techniques on perceived exertion and cardiovascular variables during resistance exercises performed by tetraplegic rugby athletes

**Sonal Khurana**
GGSIP University, India

**Background:** People with tetraplegia tend to have sedentary lifestyle which prevents optimal participation in work and recreational activities. Thus, the aim of the present study is to determine the effect of the use of diaphragmatic breathing techniques on perceived exertion and cardiovascular variables during resistance exercises performed by tetraplegic rugby athletes who use wheelchairs as their primary mode of mobility.

**Methods:** Forty tetraplegic rugby athletes with incomplete C5-C8 spinal cord injury were selected randomly to participate in the present study, and were assigned to one of two equal groups: 1) the experimental group that was taught to perform resistance exercises without any breathing instruction followed by sessions including different breathing techniques, and 2) the control group. Perceived exertion, blood pressure and heart rate were measured prior to and following each resistance exercises session.

**Results:** The collected data indicates that performing resistance exercises without any breathing instruction induced the highest cardiovascular and perceived exertion responses in both groups. Exhalation during the concentric phase of the exercise was associated with elevations in all responses as compared to inhalation during the concentric phase of the exercise which resulted in significant reduction of all responses ($p<0.01$). These results suggest that coupling inhalation or exhalation with the concentric phase of the lift of resistance exercises produces similar blood pressure responses, while the inhalation technique specifically reduces heart rate and perceived exertion. Thus, the inhalation technique is recommended for its sustained effects on all studied variables.

**Conclusion:** The findings of the current study contradict the generally accepted relationship between the rate of perceived exertion and heart rate during exercises performed by people without disabilities.

sonal8khurana@gmail.com

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## Understanding the concept of barefoot exercise science and its application in physical rehabilitation

**Sunita Chavan**
Mahatma Gandhi Mission's University of Health Sciences, India

The only contact point between the body and the ground is feet, that is rich in 80% of plantar proprioceptors and play important role in controlling the body reacting to the upright movement. Human body is interconnected through fascia which is rich in small nerve fibres and free nerve endings. Any imbalances in foot must impact on the lower leg, which travels to the hip and pelvis, and then continues to the thoracic spine and shoulder affecting the fascial integrity. By Releasing the tight Fascia and ground up barefoot training, will strengthen the small muscles of foot, improving the ankle and foot mobility, correcting the poor joint alignment and destressing the soft tissue structures, correcting posture, improving balance and stability. Fascial sequencing exists via the Deep Front Line connecting the plantar foot with deep hip and pelvic floor. Studies have also shown that by training the foot to core sequencing you begin to establish feed forward and pre-activation sequences to enable faster foot to core stability. Rehabilitation of musculoskeletal issues, Sports injuries, Neurological conditions and training of athletes and runners, becomes more effective by Barefoot Exercise training proved by Dr. Emiley Splichal the Founder of Evidence based fitness academy (EBFA). Engaging Patient with Short foot exercise (single leg stance) activates the deep fascial line reinforcing foot to core stability. Integrating the Barefoot stimulation with foot to core fascial tensioning makes Rehabilitation more effective. Barefoot Exercise Science is the Scientific, Evidence based, inexpensive, and result based mode of Rehabilitation.

dcsoni04@gmail.com

## Hypopressive training as a tool for the prevention and rehabilitation of pelvic floor dysfunction

**Trista Zinn**
International Hypopressive & Physical Therapy Institute, Spain

The pelvic floor has a fundamental role for postural control, proper breathing, and core function. The coordinated activity of the diaphragm, lumbar spine, abdominals and pelvic floor musculature influence postural control by regulating intra-abdominal pressure and by increasing tension in the thoracolumbar fascia. Based on this synergy, a variety of alternative pelvic floor muscle training programs have been proposed to enhance core and pelvic floor function. Hypopressive training (HT) is a breathing and postural exercise technique used in Europe for postnatal recovery and treatment of commonly encountered pelvic floor dysfunction including pelvic organ prolapse and urinary incontinence. HT is performed via short bouts of breath holding and inspiratory muscle contraction maneuvers interspersed with slow, deep breathing while maintaining different body positions. The bouts of breath holding are performed with a low lung volume which impacts the cardiovascular response due to a decrease in breathing frequency and oxygen saturation. HT focuses on elongation of the vertebral spine and pelvis with isometric and eccentric muscle actions through specific postures. The visceral decompression that is exerted due to the diaphragmatic aspiration during HT has been shown to contribute to urethrovesical angle mobilization and an increase in vascularization and thickness of the transverse abdominis & levator ani muscle. HT may be an alternative exercise program to retrain the core, restore pelvic floor function and improve respiratory function. Additional research is needed to examine the physiological effects of HT and the use of this training technique in fitness and rehabilitation centers.

tzinn@coresetfitness.com

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## A comparative study on the influence of kinesio taping® and laser therapy on knee joint position sense, pain intensity, and function in individuals with knee osteoarthritis

**Vahid Mazloum**
Azad University of Karaj, Iran

**Introduction:** Conservative rehabilitation methods are assumed as a fundamental part of treatment in patients with knee osteoarthritis (OA). The objective was to investigate the influence of Kinesio Taping® (KT®) and low level laser therapy (LT) on pain intensity, function, and knee joint position sense (JPS) in such patients.

**Materials & Methods:** Twenty-six male patients (Mean±SD of age: 48.5±4.6 years) with unilateral knee OA were randomly divided in to two groups of KT® (N=13) and LT (N=13). Both groups followed their own specific therapeutic protocol in addition to routine physiotherapy program for 10 sessions. The outcome measurements included pain intensity, function, and knee JPS; which were evaluated using visual analogue scale, 'Up and Go test', and reproduction of target angle at baseline and after completing the interventions; respectively.

**Results:** Both methods can significantly improve pain intensity, reduce the time to perform 'Up and Go test', and reduce the angle reproduction error of 60º knee flexion ($P<0.001$). Mean difference for target angle reproduction error was more significant in KT group compared to LT group ($P<0.001$); while no significant mean difference was found for other measurements ($P>0.05$).

**Conclusion:** KT® and low level laser can improve pain, knee JPS, and function in clients with knee OA; however there is better effect of KT® on knee JPS.

dcsoni04@gmail.com

## Thermal medicine, the heat shock response and the modulation of inflammation: A therapeutic come back in a remix

**Wilton Remigio**
Misericordia University, USA

Thermal therapies have been constitutive components of most ancient systems of medicine and their use is re-emerging. New evidence has captured the interest in the use of therapeutic heat for its ability to sensitize aberrant cells to radiation injury, provide costimulatory signals to stir immunocompetence, to precondition tissue in defense against various endogenous injury and to downregulate pro-inflammatory genes. Copious studies have investigated the modulation of both local and systemic inflammation by exogenous, local or systemic heat applications and these modalities should reclaim their place in the physical medicine shack of available therapeutic tools. The induction of heat stress markedly elevates tissue expression of many heat shock proteins which comprise a superfamily of molecular chaperones found in most tissues. Heat shock proteins are highly cytoprotective molecules eliciting the appearance of defended tissue phenotypes against several injurious subcellular stresses. The heat shock response (HSR) can powerfully modulate inflammation by triggering over expression of several heat shock protein which in turn mediate the inhibiting expression level of factors such as NFkB and thus a cascade of pro-inflammatory gene profiles. In this presentation, we review the biology of thermal stresses, the current evidence substantiating the uses of heat as an adjunct therapy in several pathological processes with a focus on inflammation.

wremigio@misericordia.edu