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Yoga and Physiotherapy Congress

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Accepted Abstracts

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Utility of five time sit to stand (FTSTS) test as a fall risk assessment tool in COPD

SumanaBaidya^{1, 2}

¹University School of Medical Sciences, Nepal

²Annapurna Hospital, Nepal

Background: FTSTS appear to be very useful for assessing fall risk in individuals with COPD, it has not yet been examined in this population.

Objectives: The purpose of this study was to identify the risk of fall using FTSTS in patient with COPD. The study aimed to: 1) Characterize FTSTS performance in COPD at different stages of disease, year of illness, use of oxygen supplementation, medication and smoking history. 2) Determine the relationships between FTSTS test performance and timed up and go (TUG) test performance. 3) To determine the utility of the FTSTS for discriminating between individuals with COPD with and without a history of falls and identify an appropriate cutoff score to delineate between these groups.

Methods: 129 COPD patients from Dhulikhel Hospital were recruited by using purposive sampling method. The year of illness; severity of the disease, medication details, use of oxygen supplementation, history of smoking, retrospective history of fall was collected. TUG test as well as FTSTS test was performed by the patient on two consecutive days by the same physiotherapist.

Results: There was significant correlation found between fall history and age ($r=0.251$, $p<0.01$); FEV1 ($r=-0.530$, $p<0.01$); years of illness ($r=.336$, $p<0.01$). There was no significant correlation between other variables. The ROC curve analysis determined a cutoff of 14.6 seconds (sensitivity, 0.836; specificity, 0.860) for discriminating between fallers and non-fallers, with an area under the curve of 0.928.

Conclusion: The FTSTS is a quick, easily administered measure that is useful for gross determination of fall risk in individuals with COPD.

Sumana.baidya.pt@gmail.com

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Yoga is integrated movement

Adam Wolf

Physical Therapist and Massage Therapist, USA

The disciplines within movement therapy as recognized in the west are at most 100 years old, and only in the past 30-40 years has the concepts of integrated movement even come into being. However the discipline of yoga, which encompasses principles of integrated movement, is thousands of years old and only now are we recognizing the numerous benefits. In this principle-strategy-application based workshop, we will explore the consistencies of integrated movement and how they relate to yoga, including the fact that combinations of tissue work together. You will relate five fascial lines and how they can be lengthened and strengthened together, and also utilized within a yoga practice. These movements will enhance both mobility and stability, and also provide direction for a home-workable program, which is necessary for anyone in pain and requiring behaviour change.

adam@realmovementpt.com

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Therapeutic applications of yoga principles for chronic pain

Adam Wolf

Physical Therapist and Massage Therapist, USA

This workshop is the extension of the “yoga applications in the rehab setting” lecture. In this principle based workshop, you will learn the strategies behind when to utilize specific applications of asana, pranayama and pratyahara, all of which are established methods to create parasympathetic dominance in the nervous system. People in pain are stuck in a negative feedback loop, in a situation where motion creates pain, which creates anxiety and fear around movement, which leads to more fear and anxiety around pain. Awareness of self during painful moments can assist in being in the moment, as opposed to of the moment, which, based on the biopsychosocial model of pain is important. When someone is in pain, utilizing pranayama, asana and pratyahara principles works with biology, psychology and sociology all at the same time.

adam@realmovementpt.com

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The effect of extracorporeal shock wave therapy on flexor spasticity in stroke patient

Ahmed Attia Ramadan Ali
Cairo University, Egypt

Background & Purpose: Spasticity is a disabling complication of stroke. Different non-invasive modalities of treatment were used to reduce muscle hypertonia. The purpose of this study was to investigate the effect of extracorporeal shock wave therapy on spasticity of hand and wrist in stroke patients.

Subjects: A total of 30 stroke patients with moderate spasticity in hand and wrist muscles participated in this study.

Methods: The patients were divided randomly into two equal groups. The study group received four successive sessions of extra corporal shock waves as one session per week over flexor carpi ulnaris, flexor carpi radialis and intrinsic muscles of the hand. The control group received placebo treatment sessions of extra corporal shock wave. Both groups received a selected physical therapy program for stroke patients for total four weeks as three sessions per week. Modified Ashworth scale, hand dynamometer and electrophysiological studies were performed for all patients before and after treatment sessions.

Results: The results revealed that, patients of the study group (A) showed greater improvement in flexor tone of wrist and fingers compared with placebo stimulation group. Regarding to the modified Ashworth scale, a significant decrease of muscle tone was noted in all patients receiving active treatment than the control group regarding to H/M ratio results revealed that there was no statistical significance between both groups. Hand grip strength using hand dynamometer showed more improvement in the study group compared to the control group.

Conclusion: Extracorporeal shock wave therapy reduces hypertonicity of the wrist and hand muscles in stroke patients.

dr.ahmedattia84@hotmail.com

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Association of quadriceps torque with lower extremity dysfunction in women with early degrees of knee osteoarthritis (OA)

Ahmed Elmelhat
Cairo University, Egypt

Purpose: The purpose of this study was to investigate whether or not there is an association between concentric and eccentric torque of quadriceps muscle with lower extremity dysfunction represented by WOMAC including (pain, knee stiffness and physical function) in women with early stages of knee OA.

Backgrounds/Significance: Osteoarthritis (OA) is a progressive and disabling joint disease. Quadriceps weakness is a hallmark impairment of knee osteoarthritis and the symptoms of knee OA are attributed to it. However, few studies have evaluated this relationship in a population with early stages of knee OA especially in women.

Subjects: Forty females patient represented their mean age (50.05 ± 4.006) years, mean weight (82.13 ± 8.16) Kg, mean height (158.07 ± 7.25) Cm and mean BMI (30.5 ± 4.86) Kg/m², with knee OA grades I or II (according to Kellgren and Lawrence criteria) participated in this study.

Methods & Materials: The concentric and eccentric quadriceps torque were assessed using a biodex isokinetic dynamometer, multi-joint system 3, at a speed of 90°/s. Self-reported symptoms and disability were assessed using the WOMAC questionnaire.

Analyses: Spearman's r correlation coefficients was used to analyze the relationship between the dependent variables (WOMAC subscales for pain, stiffness and physical function) and the independent variables (the normalized mean peak concentric and eccentric quadriceps torques). Significance level set at $p < 0.05$ for all comparisons.

Results: The results of this study demonstrated that there is strong negative correlation between the concentric quadriceps torque and pain ($r = -0.68$, $p < 0.001$) and physical function ($r = -0.63$, $p = 0.011$) but poor negative correlation among the concentric quadriceps torque and stiffness ($r = -0.25$, $p = 0.11$). Eccentric quadriceps torque presented a moderate and negative correlation with pain and physical function of the two subscales of the WOMAC ($r = -0.50$ to 0.53 , $p < 0.05$).with poor correlation with stiffness ($r = -0.28$, $p = 0.07$).

Conclusions: It can be concluded that the concentric and eccentric quadriceps torque is significantly correlated with self-report symptoms of patients (pain and physical function) in initial stages of knee OA with poor correlation between the concentric and eccentric quadriceps torque stiffness.

dr.ahmedattia84@hotmail.com

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Epley repositioning maneuver versus Gans repositioning maneuver on postural instability in elderly patients with benign paroxysmal positional vertigo

Ahmed Mohamed Saeed
Cairo University, Egypt

Background: Patients with benign paroxysmal positional vertigo (BPPV) especially the elderly often experience a greater incidence of falling, postural instability as well as unsteadiness of gait during and between the vertigo attacks. The Epley repositioning maneuver has been proven to be effective in improving the postural control, whereas Gans repositioning maneuver (GRM) is still lacking data.

Purpose: The purpose of this study was to compare between the effectiveness of GRM and Epley repositioning maneuver in improving postural stability in elderly patients with posterior canal BPPV.

Patients & Methods: In this randomized controlled trial, thirty patients with unilateral posterior canal BPPV canalithiasis form were participated in the study with age ranged from 40 to 70 years. Their diagnosis was confirmed by positional testing and Video nystagmography findings. They were randomly assigned into 2 groups of equal number, 15 per each group. Group A (study group) was assessed by side lying test and treated by Gans maneuver while group B (control group) was assessed by Dix-Hallpick test and treated by Epley maneuver. Postural stability was assessed by computerized dynamic posturography before the application of the repositioning maneuver and after complete remission of BPPV symptoms regardless number of sessions.

Results: Patients in both groups showed improvement within the groups in equilibrium scores subtest 4, 5, 6 ($P < 0.05$), whereas there was no significant difference between groups ($P > 0.05$) regarding equilibrium scores. Also, (86.7 %) of patients treated by Gans and (46.67%) who treated by Epley were cleared after one session while (13.3%) of group A were cleared after 2 session and (53.33%) of group B were cleared after 2 to 4 sessions.

Conclusion: Gans repositioning maneuver is an effective physical therapy maneuver as Epley repositioning maneuver not only in improving postural instability in elderly patients with post canal BPPV but also for being simple, less painful and provided higher percentage of success with low number of sessions.

ahmed_neuro@yahoo.com

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Efficacy of combined versus open and closed kinetic-chain exercises on selected physical performance indices and health-related quality of life of individuals with knee osteoarthritis

Oladapo M Olagbegi¹, Babatunde O Adegoke² and Adesola C Odole²

¹University of Ibadan, Nigeria

²Rhodes University, South Africa

Background: Effects of combined kinetic-chain exercises on physical performance and quality of life in knee osteoarthritis (OA) has not been reported. This study was designed to investigate and compare the effects open, closed and combined kinetic-chain exercises (OKCE, CKCE and CCE) on performance-based physical function and health-related quality of life (HRQoL) of patients with knee OA.

Method: The randomized clinical trial involved 96 consecutive patients with knee OA who were randomly assigned to one of OKCE, CKCE or CCE groups. Comfortable and fast pace walking time (CPWT, FPWT) and HRQoL were assessed using a stopwatch and arthritis impact measurement respectively at baseline and at the end of weeks 4, 8 and 12.

Results: The groups were comparable regarding their demographic and dependent variables at baseline; there were no significant intergroup differences in CPWT, FPWT and HRQoL at the end of weeks 4, 8 and 12. CCE group (-2.38±2.52 s) however demonstrated significantly higher mean change in CPWT than either OKCE (-1.31±1.03 s) or CKCE group (-1.44±1.19 s) between baseline and week 12. Walking times and HRQoL scores significantly reduced across all-time points of the study indicating improvement for all measures.

Conclusion: Combined kinetic-chain exercises are more effective than either OKCE or CKCE alone for improvement of physical performance in knee OA.

dapoolagbegi2015@gmail.com

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Efficacy of polarized light versus shock wave in the treatment of pressure ulcer

Ehab Abdelhafeez Abdealmaged
Cairo University, Egypt

Background: In clinical practice, many wounds are slow to heal and difficult to manage and so, this study was performed to compare the efficacy of polarized light versus shock wave in the treatment of pressure ulcer.

Methodology: Thirty patients were included in this study. Their ages ranged from 40 to 60 years and were randomly divided into two groups, each group containing 15 patients: Group (A) received traditional medical treatment and polarized light, three days/week for eight weeks. Group (B) received treatment with shock wave therapy plus traditional medical treatment, one session/week for eight weeks. The measurements were done before the study and after eight weeks of treatment for both groups by using wound surface area tools (tracing method) and epithelialisation rate (ER).

Results: It showed reduction in wound surface area after treatment for groups (A) and (B), with percentage of 50%, 40.58% respectively and for epithelialisation rate there was a significant increase in ER of group (A) post treatment compared to group (B) as 52.14%, 42.24% respectively.

Conclusion: Both polarized light and shock wave had the same significant effect on pressure ulcers healing with high significant improvement in epithelialization rate using polarized light than shock wave therapy.

dr.ahmedmohey88@yahoo.com

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Utilizing pranayama methods for those with back pain

Jessica

yoga practitioner, USA

The benefits of yoga have been known for thousands of years, and only recently are becoming popular and incorporated into the lifestyles of those in the west. Pranayama, or controlled breathing, is the fourth limb of yoga, has numerous benefits and can easily be taught to people who are in pain. Research has illustrated that those with back pain have a myriad of dysfunctions, including difficulty in diaphragmatically breathing, engaging the core, and anxiety surrounding their dysfunction. Pranayama, or breath-work, this principle based, interactive workshop will explore the benefits of pranayama for people with back pain, and pain in general. You will learn techniques that can immediately be applied to anyone, including skills to teach effective breath-work and core engagement.

jmcarlin77@gmail.com

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Does kinesio taping correct exaggerated dynamic knee valgus? A randomized double blinded sham-controlled trial

Jignesh patel

Stavya Spine Hospital and Research Institute, India

Background: Deficiency in hip girdle neuromuscular control can cause exaggerated dynamic knee valgus (DKV) which afflicts the knee joint and lead to knee injuries especially ACL injury in sports. Though kinesio taping (KT) is known to improve function, stability and proprioception, scanty evidence is available on its effectiveness in athletes. We hypothesized that kinesio taping could enhance neuromuscular control of the hip girdle there by causing a reduction in DKV.

Aim/Objective: To determine whether kinesio taping on gluteus medius can correct exaggerated dynamic knee valgus and improves hip abductor strength.

Method: Forty collegiate athletes, aged between 18 and 28 years, of both genders with presence of dynamic knee valgus (>8 degrees for men and >13 degrees for women) were recruited in the study. Athletes were excluded if they had history of lower back pain, history of any injury or surgery to the lower extremities during the past year. Subjects who met the inclusion criteria were randomized into kinesio taping (KT) group and sham taping (ST) group. Donatelli drop leg test (DDT) and DKV test were performed before, immediately and on the third day after the application of KT on them and documented.

Results: There is a significant reduction in DKV among male [3.1 degrees (4.1-2.0); $p<0.001$] and female [5.5 degrees (7-4); $p=0.002$] immediately after application of taping but not on the third day after application of KT. There is a significant rise in DDT immediately and on the third day after application of KT between KT group and SC group.

Conclusion: There is a reduction in DKV immediately after the application of KT. However, there was no significant difference between KT group and SC group on the third day. Meanwhile, gluteus medius strength also showed significant improvement immediately after taping and it was maintained even on the third day.

drjigneshpatelphysio@gmail.com

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Longitudinal changes in lifestyle behaviors and health status of the health science community at Kuwait University

Nowall Al-Sayegh
Kuwait University, Kuwait

Introduction & Objectives: Health professionals who adopt healthy lifestyles are more likely to promote healthy living practices in their community. Data are needed to inform the building of such a culture. Therefore, the aim was to benchmark HSC staff and students' health across successive years.

Methods: Data on health behavior profiles related to smoking, physical activity, stress, sleep, systolic and diastolic blood pressure (SBP and DBP), heart rate (HR), random blood sugar (RBS), body mass index (BMI) and waist-to-hip ratio (WHR) from the on-going longitudinal data collection was collected.

Results: 420 participants (130 academic or non-academic staff, 290 students, 113 males and 307 females) participated in both 2014-15 and 2015-16. From unhealthy in 2014-15 to healthy in 2015-16, comparisons using McNemar Chi-square test showed major changes in SBP (36.8%, $p < 0.001$), DBP (17.5%, $p < 0.001$), HR (21.1%, $p = 0.001$), and moderate physical activity (20.1%, $p = 0.002$). Subgroup analyses showed similar changes in status among female and student groups. Among male participants, the change was significant only in SBP and DBP and the staff subgroup in SBP, DBP and HR. A marginal change was seen in WHR from healthy to unhealthy among all participants (7.4 %, $p = 0.040$) and student subgroup (6.6 %, $p = 0.007$). Considerable change in the same direction was observed in BMI among female (30.7%, $p = 0.016$) and student groups (30.1%, $p = 0.032$). Notable proportions of all participants remained unhealthy in stress (78.8%), sleep hours (61.1%), HR (49.3%) and BMI (28.2%). Smoking status and RBS level of all participants were found to be healthy in both study years (88.8% and 98.8% respectively).

Conclusions: This study noted suboptimal health on several dimensions of lifestyle behaviors and objective measures. On the basis of our findings, health promotion strategies on campus can be justified.

nowall@hsc.edu.kw

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Effects of stress relieving technique on individual with psychological stress during menstruation among Krupanidhi college students

Rajan Balakrishnan, Mischel and Shruthi
Krupanidhi college, India

Objective: The objective of this study was to identify the effectiveness of Jacobson's progressive muscle relaxation (JPMR) technique and music therapy in coping with stress during menstruation compared with self awareness.

Background: Most of the previous studies were only focused on the stress level of menstruating women but less study on the technique to reduce the stress level in menstruating women.

Subject: Forty subjects (40 females) with mean age of 22.3 (range 19-25) participated voluntarily in the study. A subject was randomly assigned to either group A or B.

Research Design: A comparative study was done following the convenience sampling method. This work was carried out at the Outpatient Department of Krupanidhi College

Method: All the subjects were given DASS21 questionnaire to measure the level of stress. Additionally, subject in group A received Jacobson's progressive muscle relaxation technique for the time duration of 20 minutes during each day of menstruation while subject in group B music therapy were given for 20 minutes to cope with the stress during menstruation. DASS21 questionnaire was given to all participants, stress score were taken on all subjects for pre and post test.

Result: Independent and paired t test was done using graft pad prism version 6. From the independent "t" test analysis Jacobson's progressive muscle relaxation or music therapy significance were evaluated. When compared between the groups on post intervention, to find out the significant difference between both interventions.

Conclusion: This study will conclude whether Jacobson's progressive muscle relaxation technique or music therapy were effective in reducing the level of stress level.

rajanb007@gmail.com

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Impaired neuromuscular function eight and twenty-six weeks after childbirth

Rita Deering

Marquette University, USA

Pregnancy and childbirth present many perturbations to the musculoskeletal system. Low back pain, pelvic girdle pain, and incontinence are associated with pregnancy and childbirth, and have been linked to dysfunction of the abdominal muscles. However, the musculoskeletal system is not assessed as part of standard postpartum care in the US. We hypothesized that postpartum women would demonstrate impaired strength and fatigability of the abdominal muscles, and greater sensitivity to experimental pain, than women who have never been pregnant. We assessed strength and fatigability of the trunk flexor muscles, fatigability of the lumbopelvic stabilizing muscles, and pressure pain thresholds at the abdomen and nailbed in 29 postpartum women (20-40 years; 19 vaginal deliveries) and 22 control women. At eight weeks after delivery, postpartum women demonstrated severe deficits in strength (33%, $p<0.05$) and fatigability (71%, $p<0.05$) of the trunk flexor muscles, and fatigability of the lumbopelvic stabilizing muscles (34%, $p<0.05$) compared to control women. Postpartum women were also more sensitive to experimental pain (26%-37%, $p<0.05$). At 26 weeks after delivery, postpartum women continued to demonstrate significant impairments in strength (44%, $p<0.05$) and fatigability (52%, $p<0.05$) of the trunk flexor muscles, and fatigability of the lumbopelvic stabilizing muscles (23%, $p<0.05$) compared to control women. Postpartum women demonstrated a similar pressure pain threshold as control women at the nailbed ($p>0.05$), but continued to demonstrate increased sensitivity to pain at the abdomen (30-37%, $p<0.05$). These findings highlight the importance of assessment and rehabilitation of the abdominal muscles after pregnancy.

rita.deering@marquette.edu

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Significance of q angle as a prognostic outcome measure for subjects with spastic diplegia

Sanam Mainali, Jimshad T U and Anil T John
Dayananda Sagar College of Physiotherapy, India

Introduction: Quadriceps angle (Q angle) is the angle formed by two imaginary lines, one from ASIS to center of patella and other from tibial tuberosity to center of patella. Abnormal Q angle is one of major causes for abnormal gait. In spastic diplegic, lower limb muscles go for tightness leading to Q angle changes.

Objectives: To find out significance of q-angle value as a prognostic outcome measure in male subjects with spastic diplegia aged between 7 to 12 years.

Study design: Experimental, pre-post-test design was carried out.

Study Participants and Setting: Total of 10 male subjects with spastic diplegia aged between 7-12 years. Study was conducted in pediatric rehabilitation centers in Bangalore and Mysore, India.

Method: This study is performed as a continuation of our previously published research titled Does Q angle change in Spastic Diplegia subjects? In previous study, total of 30 male subjects with spastic diplegia and age 7-12 years were included. The study had proven spastic diplegic children with internal tibial torsion have decreased q-angle and children with external tibial torsion have increased q-angle. In this study, total of 10 subjects were selected out of previously included 30 male subjects based on randomized sampling. Out of 10 subjects, five subjects had internal tibial torsion (group A) and five external tibial torsion (group B). Subjects underwent active rehabilitation of lower limbs for eight weeks. Pre and post intervention value of q angle was collected and compared for analysis.

Result: Mean age of group A was 7.8 and group B was 8.4, group A mean BMI was 16.4 and group B was 15.8. Remarkable variation in q-angle was found in pre and post intervention data. In group A, pre-intervention Q angle was 6.6 (left) and 6.8 (right), post intervention was 8.6 (left) and 9.0 (right). In group B, pre-intervention Q angle was 22.8 (left) and 22.6 (right), post intervention 20.6 (left) and 20.2 (right).

Conclusion: After analyzing results from the current study and support from past literatures, this study concludes that q-angle is a good prognostic quantitative outcome measure and can be used to check competency of therapeutic exercises in pediatric population.

smainali1110@gmail.com

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Integrative remedial care of irritable bowel syndrome

Senthamil R Selvan

Vetha Center for Transdisciplinary Studies, USA

Irritable bowel syndrome (IBS) is a functional gastrointestinal (GI) disorder that has both physical and mental causes. Albeit these causes, only limited studies that address the impact of yoga on IBS patients. Therefore, there is a need for a systematic study to develop a practical and concise yoga module that could be used to relieve the symptoms of IBS. We evaluated the outcome of a randomized controlled trial (RCT) and a follow-up maintenance intervention of a designed remedial yoga module (RYM) in improving the severity of IBS. The RCT comprised yoga, combination, and control groups of patients. Yoga and combination groups received RYM practices for an hour, three times a week for 12 weeks, and control group maintained their current life style. The wait-list control group from the 12-week RCT was offered the same RYM practices. All patients who completed the 12-week RYM intervention were offered an additional 12 weeks of once a week, one hour RYM intervention. Patient-reported outcomes were assessed. There were significant improvements in IBS-SSS and IBS-QOL scores in yoga and combination groups compared to control group. Further, HADS, autonomic symptom score, IBS-GAI, physical flexibility, and autonomic functions were significantly improved in the Yoga intervention groups. In correlation, the amount of medicine and supplement use was significantly reduced in these groups. Wait list-yoga group reflected the improvements of IBS symptoms as observed in yoga and combination groups. Results of follow-up group revealed that all the significant improvements observed at week 12 were sustained at week 24. The study suggests that RYM is effective not only in relieving symptoms of IBS and also impacting overall wellbeing. The presentation will discuss in the context of eastern and modern understanding of IBS and how yoga can be a viable stand-alone treatment or an integrative option with other modalities for IBS patients.

senthamil59@gmail.com

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Role of yoga in intervention of physical impairments following treatment for head and neck cancer

Stephen Chao
SUNY at Stony Brook, USA

In 2016, it is estimated that 61,760 individuals will be diagnosed with head and neck cancer (HNC) in the United States, with approximately 13,190 deaths from the disease. This can include mantle-field radiation for treatment of Non-Hodgkins lymphoma, tonsillar cancer and oral cavity cancers. Mainstay treatment is combination of surgery, adjuvant chemotherapy and radiation therapy. Side effects from these interventions have a wide sequella of physical impairments ranging from radiation fibrosis, dropped head syndrome, cervical dystonia and impaired proprioception of the neck and trunk. These side effects can have prolonged latency of onset as well as a slow recovery period, which makes rehabilitation challenging. Furthermore, effectively creating a plan of care that fits within current reimbursement models can be untenable given the pernicious nature of these impairments. Yoga is growing in its use for physical therapy in the patient with cancer; however it is underutilized and under-explored as an intervention for patients with myelopathy and radiation fibrosis of the head and neck. Not only can yoga be an effective adjunct to conventional physical therapy, it can be a non-clinical adjunct to maintain functional improvement after the conclusion of PT. The objective of this presentation is to share the experience gained through initial efforts in the outpatient cancer rehab setting and introduce yoga as a safe, cost effective adjunct to the physical therapy care of the patient with cancer following cancer treatments directed at the head and neck which improves quality of life, self-care tasks and increases functional capacity. A secondary goal of this presentation is to encourage other rehabilitation departments to collect data on the effectiveness and implementation of yoga programs in outpatient oncology rehabilitation.

stephen.chao@stonybrook.edu