

## Studien zu Yogatherapie bei Schultererkrankungen

Interessanterweise gibt es keine Studie zu einem der heute besprochenen Krankheitsbilder direkt. Es gibt aber eine Reihe von Studien, die hier beispielhaft vorgestellt werden, die verschiedene Themen angehen, die in unsere Schulterthematik einstrahlen. Zur Förderung von Beweglichkeit und Kräftigung des Schultergürtels.

### Zur Förderung von Beweglichkeit und Kräftigung des Schultergürtels

Int J Yoga Therap. 2014 Sep;24:71-7.

#### **Flexibility of the elderly after one-year practice of yoga and calisthenics.**

Flexibility training responses to distinct stretching techniques are not well defined, especially in the elderly. This study compared the flexibility of elderly individuals before and after having practiced hatha yoga and calisthenics (= Körpergewichtsübungen, Spannungsübungen) for 1 year (52 weeks), at least 3 times/week. Sixty-six subjects (12 men) measured and assigned to 3 groups: control (n = 24, age = 67.7±6.9 years), hatha yoga (n = 22, age = 61.2±4.8 years), and calisthenics (n = 20, age = 69.0±5.8 years). The maximal range of passive motion of 13 movements in 7 joints was assessed by the Flexitest, comparing the range obtained with standard charts representing each arc of movement on a discontinuous and non-dimensional scale from 0 to 4. Results of individual movements were summed to define 4 indexes (ankle+knee, hip+trunk, wrist+elbow, and shoulder) and total flexibility (Flexindex). Results showed significant increases of total flexibility in the hatha yoga group (by 22.5 points) and the calisthenics group (by 5.8 points) (p < 0.01 for each) and a decrease in the control group (by 2.1 points) (p < 0.01) after one year of intervention. Between-group comparison showed that increases in the hatha yoga group were greater than in the calisthenics group for most flexibility indexes, particularly the overall flexibility (p < 0.05). *In conclusion, the practice of hatha yoga (i.e., slow/passive movements) was more effective in improving flexibility compared to calisthenics (i.e., fast/dynamic movements), but calisthenics was able to prevent flexibility losses observed in sedentary elderly subjects*

Asian J Sports Med. 2011 Dec;2(4):259-66.

#### **How effective is sun salutation in improving muscle strength, general body endurance and body composition?**

Bhutkar MV1, Bhutkar PM, Taware GB, Surdi AO.

The purpose of the present study was to evaluate effects of regular practice of sun salutation on muscle strength, general body endurance and body composition. Subjects (49 male and 30 female) performed 24 cycles of sun salutation, 6 days a week for 24 weeks. Upper body muscle strength was determined by 1 repetition maximum (1 RM) for bench press and shoulder press technique. Back and leg dynamometry was used to assess strength of back and leg muscles. General body endurance was evaluated by push-up and sit-up tests. Body composition was assessed by noting % body fat by using bioelectric impedance analysis. Perceived intensity of exercise by subjects was noted by Borg scale.

Muscle strength by bench press showed significant increase in male (29.49±9.70 to 36.12±9.09 Kg, P<0.001) and female (10.5±4.42 to 13.16±4.44 Kg, P<0.001) subjects. Strength by shoulder press also increased (males; 22.96±9.57 Kg to 26.53±11.05 Kg, P<0.001, females; 6.83±2.78 to 8.83±3.87, P<0.001). Endurance by push-ups & sit-ups showed similar findings in male (19.0±9.58 to 21.98±8.98, P<0.001 and 24.92±10.41 to 29.84±12.64, P<0.001 respectively) and female (14.66±6.80 to 18.56±6.97 and 13.16±7.75 to 19.23±8.25, P<0.001 respectively) subjects. A significant decrease in body fat percent was observed only in female (27.68±5.46 to 25.76±4.72, P<0.001) but not in male subjects. BMI significantly decreased in both the groups (z=4.37, P<0.001 and t=5.41, P<0.001 respectively). From our observations we conclude that sun salutation can be an ideal exercise to keep oneself in optimum level of fitness

## Zu Schmerzen im Weichteil-System

Int J Yoga. 2014 Jan;7(1):54-9.

### **Effect of yoga on the Myofascial Pain Syndrome of neck.**

Myofascial Pain Syndrome (MPS) refers to pain attributed to muscle and its surrounding fascia, which is associated with «myofascial trigger points» (MTrPs). MTrPs in the trapezius has been proposed as the main cause of temporal and cervicogenic headache and neck pain. Literature shows that the prevalence of various musculoskeletal disorders (MSO) among physiotherapists is high. Yoga has traditionally been used to treat MSOs in various populations. But there is scarcity of literature which explains the effects of yoga on reducing MPS of the neck in terms of various physical parameters and subjective responses. Therefore, a pilot study was done among eight physiotherapists with minimum six months of experience. A structured yoga protocol was designed and implemented for five days in a week for four weeks. The outcome variables were Disability of Arm, Shoulder and Hands (DASH) score, Neck Disability Index (NDI), Visual Analogue Scale (VAS), Pressure Pain Threshold (PPT) for Trigger Points, Cervical Range of Motion (CROM) - active & passive, grip and pinch strengths. The variables were compared before and after the intervention. Finally, the result revealed that all the variables (DASH:  $P < 0.00$ , NDI:  $P < 0.00$ , VAS:  $P < 0.00$ , PPT: Left:  $P < 0.00$ , PPT: Right:  $P < 0.00$ , Grip strength: left:  $P < 0.00$ , Grip strength: right:  $P < 0.01$ , Key pinch: left:  $P < 0.01$ , Key pinch: right:  $P < 0.01$ , Palmar pinch: left:  $P < 0.01$ , Palmar pinch: right:  $P < 0.00$ , Tip pinch: left:  $P < 0.01$ , Tip pinch: Right:  $P < 0.01$ ) improved significantly after intervention.

## Zur Sturzprophylaxe

J Altern Complement Med. 2014 Dec;20(12):949-54.

### **The effects of a therapeutic yoga program on postural control, mobility, and gait speed in community-dwelling older adults.**

Kelley KK1, Aaron O, Hynds K, Machado E, Wolft M.

To examine the effects of a 12-week therapeutic yoga program on gait speed, postural control, and mobility in community-dwelling older adults. Quasi-experimental study with a pretest-post-test design. Researchers evaluated changes over time (pretest to post-test) in all outcome measures. Paired t-tests were used to analyze normal and fast gait speed, Timed Up and Go test, and Timed Up and Go Dual Task. Wilcoxon signed-rank test was used to evaluate scores for the Mini-BESTest (MBT).

Yoga classes were performed at a local senior center. Blind examiners who were previously trained in the outcome measures performed all pretests and post-tests at the site. Thirteen adults (12 women and 1 man, with a mean age  $\pm$  standard deviation of  $72 \pm 6.9$  years) completed the study. Research participants had minimal to no yoga experience. A 12-week, 60-minute, biweekly Kripalu yoga class designed specifically for community-dwelling older adults. Postural control (MBT), mobility (Timed Up and Go test), and gait speed (normal and fast) were assessed. All 13 participants attended at least 19 of the 24 classes (80% attendance). Statistically significant improvements were seen in the MBT ( $p = 0.039$ ), normal gait speed ( $p = 0.015$ ), fast gait speed ( $p = 0.001$ ), Timed Up and Go test ( $p = 0.045$ ), and Timed Up and Go Dual-Task ( $p = 0.05$ ). Improvements in postural control and mobility as measured by the MBT and Timed Up and Go gait as measured by fast gait speed indicate that research participants benefitted from the therapeutic yoga intervention. *The yoga program designed for this study included activities in standing, sitting, and lying on the floor and may be effective in improving mobility, postural control, and gait speed in community-dwelling older adults.*

## Zur Knochenheilung

J Altern Complement Med. 17(3):253-8

### **The effect of add-on yogic prana energization technique (YPET) on healing of fresh fractures: a randomized control study.**

The objective was to study the effect of the add-on yogic prana energization technique (YPET) on healing of fresh fractures. Thirty (30) patients (22 men and 8 women) between 18 and 55 years with simple extra-articular fractures of long and short bones were selected from the outpatient department of Ebnezar Orthopaedic Centre and PaHmala Speciality Hospital, Bengaluru. They were randomized into yoga (n = 15) and control (n = 15) groups. Compound, complicated, pathologic fractures, old fractures, and those associated with dislocations were excluded. Both groups received the conventional plaster of paris immobilization of the fracture site as the primary treatment. The yoga group, in addition, practiced YPET twice a day (30 minutes/session) for 2 weeks, using taped audio instructions after learning under supervision for 1 week. YPET is an advanced yoga relaxation practice that involves breath regulation, chanting, and visualization, which according to yogic science revitalizes the tissues by activating the subtle energies (prana) within the body. Both the groups were assessed on the 1st and 21st day by the Numerical Pain Rating Scale for pain (NRS), tenderness (0-4), swelling (0-4), fracture line density (1-4), and the bridging of cortices (1-4). Two (2) groups were matched on all variables. The Wilcoxon test showed significant improvement in both groups on all variables. Pain reduction (NRS) was better (p = 0.001 Mann-Whitney test) in the YPET group (94.5%) than in the control group (58.6%); Tenderness reduced (p = 0.001) better in the YPET group (94.4 %) than in the control group (69.12%); Swelling reduced by 93% in the YPET group and by 69.4% in controls (between-groups p = 0.093, i.e., nonsignificant); increase in fracture line density was better (p = 0.001) in the YPET group (48%) than in the control group (18.25%). The number of cortices united was significantly better (p = 0.001) in the YPET group (81.4%) than in controls (39.7 %).

*Add-on yoga-based YPET accelerates fracture healing.*