

Comparison of bruegger's exercise with elastic resistance band and deep cervical flexor training with pressure biofeedback unit in asymptomatic subjects with forward head posture: A randomized controlled trial

Peeyoosha Gurudut

KLEU Institute of Physiotherapy, India

Key words: Postural Abnormalities, Cervical spine, Muscle Imbalances, Scapula Retractor Exercise, Isometrics, Pectoralis Minor

Background: Forward head posture (FHP) is the most frequently attained postural deviation associated with rounding of shoulders. These postural deviations are caused due to a muscular imbalance, which occurs around scapula and shoulder joint.

Objectives: To study and compare the effect of Bruegger's Exercise, deep cervical flexor training (DCFT) on Craniovertebral angle (CVA), Craniocervical flexion endurance test (CCFET), and Pectoralis minor index (PMI) in asymptomatic subjects with FHP.

Methods: The present study was three arm parallel randomized controlled trials. Fifty-one subjects with asymptomatic forward head posture were allocated to either Group A (Bruegger's Exercise with Elastic resistance band) or Group B (deep cervical flexor training with Pressure Biofeedback Unit) or Group C (control or Isometric neck exercises). The primary outcome was CVA and the secondary outcomes were CCFET and PMI. All subjects were assessed on 1st day and end of 3rd week, for CVA, CCFET, and PMI. Follow up assessment was done for CVA alone at 6th and 9th week. Statistical analysis included Paired t-test/Wilcoxon signed-rank test, ANOVA/Kruskal-Wallis test and Shapiro-Wilk test. The adaptations of the human body resulting from the aging process especially loss of flexibility can increase the risk of falls and the risk of developing other health conditions. Exercise training, especially the Pilates exercise method, has become a crucial sort of physical activity that minimizes the deleterious effects of aging on flexibility. Few studies have evaluated the effect of this training method on body flexibility among elderly.

We aimed to gauge the consequences of physical training using the Pilates method on body flexibility of elderly individuals. Eighteen elderly women and two elderly men (aged 70 ± 4 years) followed a 10-week Pilates training program. Individuals were recruited from the local community via open invitations. At study entry, none of them had limited mobility (walking requiring the utilization of walkers or canes). Furthermore, those with neurologic, muscular, or psychiatric disorders as well as those using an assistive device for ambulation were excluded secondary to limited participation. Flexibility assessment tests (flexion, extension, right and left tilt, and right and left rotation of the cervical and thoracolumbar spine; flexion, extension, abduction, and lateral and medial right and left rotation of the glenohumeral joint; flexion, extension, abduction, adduction, and lateral and medial rotation of the right and left hip; and flexion of the right

and left knee) were performed by a blinded evaluator using a flexometer before and after the training period. All assessments were carried out at the same time of day. There was an observed increase in flexion (22.86%; p falls). the motor capacity related with the amplitude of movement reached by each joint. The flexibility suffers decrease with the age, being that in the adolescence, in results of the fast pubertal growth, considerable loss of this characteristic occurs. It is known, also, that athletes of soccer and futsal, as results of the programs of force aiming the gesture of the kick, tend to possess considerable shortening of posterior thigh muscles, that promotes a loss of income and it premakes the athletes to the muscular injuries. Thus, the objective of the present study was to verify the effect in the flexibility by a program of Pilates in a sub-20 futsal team, that is considerate a highly inclined population to limitations of this capacity, and that can afford a lot of benefits with the increment of it. For such, it had been divided the athletes group in Pilates group (GP, $n = 6$ and control group (GC, $n = 5$. It was opted to gauge the pliability of athletes with two methods (fleximeter and Wells's bench. Evaluations were realized in three distinct moments: pre (24 hours before the start of the program, post-immediate (24 hours after the end of the program and post-delayed (15 days after the end of the program.

The program was realized 3 times per week with approximately 25 minutes, during four weeks. The results of the present study prove that the training protocol with the Pilates method used by the researchers did increase the flexibility of sub-20 futsal athletes. This program presented acute effects, represented by statistically significant increase to the pliability in post-immediate ($p < 0.05$ in post-delayed period to the both methods. It is suggested that more studies should be to realize with the Pilates method aiming to elucidate all possibilities of application of this therapeutic modality. Pilates may be a system of exercise focusing upon controlled movement, stretching and breathing. Pilates is popular today not just for fitness but also for rehabilitation programs. This paper may be a review of the literature on the effectiveness of Pilates as a rehabilitation tool during a wide selection of conditions in an adult population. A systematic literature review was administered consistent with the PRISMA guidelines. Electronic databases were searched for cohort studies or randomized controlled trials (RCTs), and inclusion and exclusion criteria were applied.

The final RCTs were assessed using the PEDro and CONSORT 2010 checklists. Twenty-three studies, published between 2005 and 2016, met the inclusion criteria. These papers assessed the efficacy of Pilates in the rehabilitation of low back pain, ankylosing spondylitis, multiple sclerosis, post-menopausal osteoporosis, non-structural scoliosis,

hypertension and chronic neck pain. Nineteen papers found Pilates to be simpler than the control or comparator group at improving outcomes including pain and disability levels.

Results: All subjects completed the entire study protocol with no loss to follow up. All the groups showed improvement in CVA and CCFET when compared between pre- and post-intervention. For pectoralis minor index, only Bruegger's exercise showed increase in the length. Endurance increased significantly ($P < 0.0002$) in Bruegger's and DCFT group. For CVA at 3rd week intervention ($P < 0.0205$) and 9th week follow up ($P < 0.0029$), Bruegger's group was better than DCFT and Control group.

Conclusion: Bruegger's exercise with elastic resistance band is the best exercise to correct the posture from head to shoulder to scapula and can be included in treatment of patients with postural problems of head and neck. Bruegger's exercise should be included in neck pain rehabilitation rather than simple neck isometrics.