

## Efficacy of progressive core strengthening exercise on functional endurance tests and hypertrophy of multifidus, transverses abdominis in healthy female subjects with low core endurance

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### Abstract

**Objective:** Aim of the present study was to find out the efficacy of core strengthening training on hypertrophy of core group of muscles (i.e) transverses abdominis (TA) and multifidus (MF) and on trunk flexor as well as extensor endurance tests in normal healthy low core endurance females. **Methodology:** **Study Design:** Single blind randomized control trail. **Sample size:** Convenient sample of 20 female college students with low core endurance. They divided into two groups. **Intervention:** Experimental group received six weeks progressive core stabilization exercise while control group received no treatment. **Out come measurement:** Pre and post reading of right and left side cross sectional area (CSA) of MF at L<sub>4</sub> and L<sub>5</sub> level and TA using ultra sound image. Flexor and extensor trunk isometric tests were too taken for functional improvement. **Statistics:** Related t- test were used to compare means within the group and unrelated t-tests were used to compare means between two unrelated groups. The significance level was set at  $p \leq 0.05$ . **Results:** Prior to the intervention there was no significant difference in CSA between the groups. After 6 weeks there was no significant improvement in control group. In experimental group, after six weeks on and average 35.41% improvement in CSA with MF L<sub>4</sub> left being most improved site (53.50%) and TA left being least improved site (9.01%). All improvements are statistically highly significant with  $p < 0.001$ . When the experimental group post values were compared with control group post values all MF CSA values were statistically highly significant ( $p < 0.001$ ) but TA CSA were not. **Conclusion:** The present study results supports that 6 weeks progressive core stabilization can be used as prehabilitation to prevent LBP in normal healthy female students.

**Key Words:** Stabilization exercise; Core training; Lumbar stabilization; Low back pain; Core endurance

### Introduction

Rapid growth in technology in the last couple of decades has lead to constant reduction in physical activity and increased sedentariness in lifestyle. This in turn has reduced the work of certain muscles that were once strong and were responsible for good posture & prevented injuries. This is especially true to the trunk and hip muscles that helped to maintain erect posture against the gravity. Balance between anterior and posterior group trunk and hip muscles is essential for normal postural alignment. However, habitual wearing

of high heels by young women results in definite biomechanical and musculoskeletal changes that are manifested by reduced base of support, increased anterior pelvic tilt, increased lumbar lordosis, short hip flexor and trunk extensor, weak abdominals and gluteal muscles. The resulting decreased core stability has been suggested to contribute to the etiology of lower extremity injuries in females (Leeton *et al.*, 2004).

A specific type of exercise called as core stability exercise is