

# Can Rehabilitative Ultrasonography Imaging Utilised for Activation of Transversus Abdominis in Asymptomatic Population? A Double-blinded Randomised Controlled Trial

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## ABSTRACT

**Study Design:** Double-blinded Randomised Controlled Trial. Participants: 20 asymptomatic individuals with mean age of  $23.60 \pm 1.85$  years (12males, 8 females) were included by random sampling into two groups, one was given visual feedback (experimental) & the other without feedback (control). Procedure was double-blinded in supine- hook lying (B-mode ultrasonography), transversus abdominis thickness (TrA) were measured during abdominal draw-in manoeuvre (ADIM).

**Intervention:** Intervention for activation of the TrA was administered once/week for 6-weeks via ultrasonography. Outcome measures: Visual feedback via ultrasonography for measuring TrA thickness.

**Results:** Repeated measures ANOVA analysis was run to determine any statistical difference between or within the groups. Logistic regression model was run to test association between age, gender, BMI (Body Mass Index) and desirable mean thickness of TrA. A multivariate logistic regression assessed influence of predictors from demographic variables (age, gender, BMI).RM- ANOVA indicate a statistically significant week-wise increase in thickness Wilk's lambda = 0.189, F = 12.03,  $p < 0.001$ . Follow - up comparisons indicated each pair (week-wise) difference was statistically significant,  $p < 0.001$  with no significant difference between the groups ( $p = 0.617, > 0.05$ ). Amongst the predictors BMI was found to be associated with increase activation of TrA.

**Conclusion:** Visual biofeedback via ultrasonography increases muscle activation of TrA following a 6 - week intervention. The MCID (Minimal Clinical Important Difference) defined by the improvement was able to account for progress in asymptomatic population of 20-30 years.

**Keywords:** Abdominals, Ultrasonography, Rehabilitation, Physical therapy, Visual biofeedback

