

# Inspiratory Muscle Training (IMT) improves early trunk muscle endurance when added to structured rehabilitation for late-stage postpartum diastasis recti abdominis (DRA)

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Full Doctoral Thesis



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Abstract 801

## Background & Aims

Diaphragm's role in core stability & women's health rehabilitation is widely referenced, but lacks targeted interventions for DRA

**Aim:** Explore the efficacy of inspiratory muscle training (IMT) when added to a progressive trunk stabilization exercise (TSE) protocol for late-stage DRA on inter-recti distance (IRD) & trunk endurance

## Materials & Methods

**Design:** 3-arm parallel-group RCT (Fig. 1).

**Sample:** DRA ♀ 6-month to 5 years postpartum with IRD ≥ 2.8cm at 2cm above umbilicus (U)

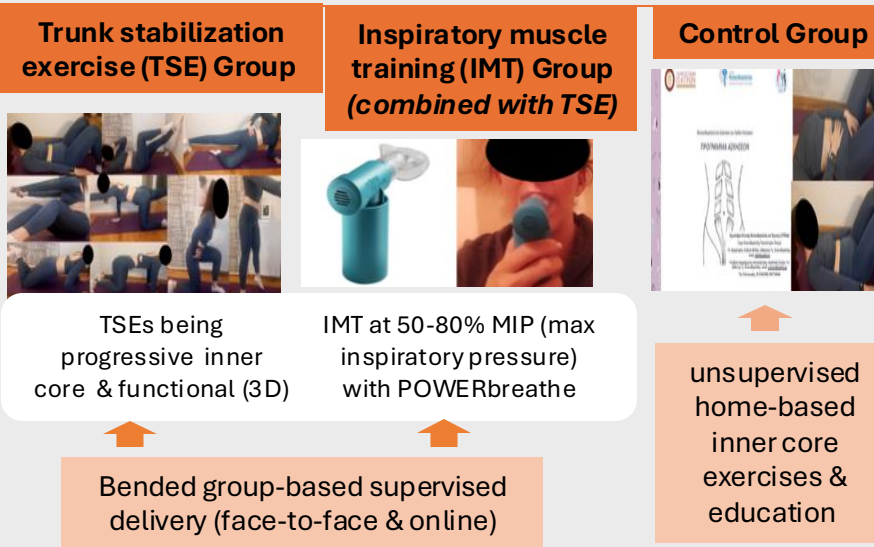


**Figure 1. Study Groups and assigned interventions (12 Weeks, 3x/week)**

**Outcomes:** IRD (ultrasound-measured) at 2cm above U at baseline & 12 weeks (primary), trunk endurance (TE) via 4 functional motor control tests (Fig. 2) at baseline, 4, 8, & 12 weeks (secondary)

**Data Analysis:** RM-ANOVA with Bonferroni correction ( $p < 0.05$ )



**Figure 2. Trunk endurance tests** (clockwise illustrating Curl-up, Side Plank, Front Plank, McGill's trunk flexor endurance)

## Results & Interpretation

64 ♀ completed interventions (15% attrition), 38.9 ± 4.5 years-old with IRD: 3.63 ± 0.97cm & postpartum time: 30.98 ± 20.12 months  
**Groups:** TSE = 21 ♀, IMT = 21 ♀, Control = 22 ♀

**IRD:** All groups showed significant 12-wk reductions ( $p < 0.001$ ; TSE: -0.50 cm, IMT: -0.52 cm, Control: -0.40 cm).  
**No between-group differences ( $p > 0.05$ )**

**TE:** (Time × Group): favoured supervised groups for Planks ( $p < 0.05$ ,  $\eta^2 = 0.07-0.12$ ) & McGill's ( $p = 0.002$ ,  $\eta^2 = 0.12$ )

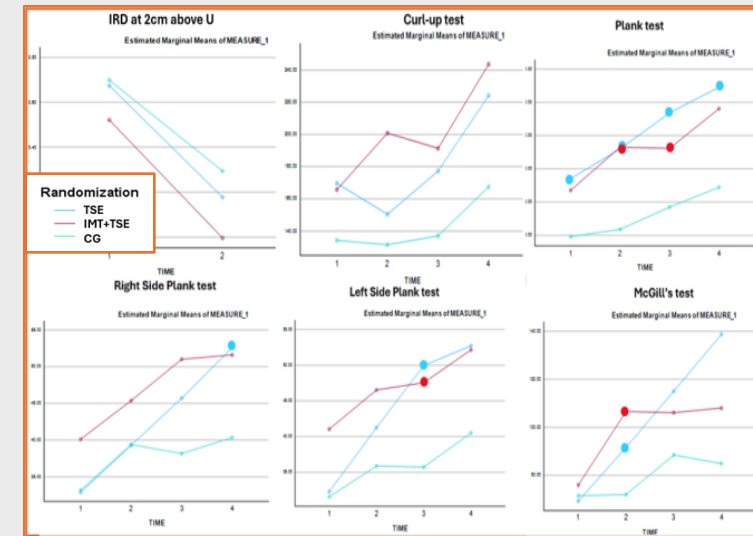


**Figure 3. Post-Hoc Comparisons. Wks 4 & 8:** IMT better than Control for front/left side plank ( $p = 0.001-0.04$ , levelled off by 12 wks), **Wk 12:** TSE better than Control for front plank ( $p = 0.03$ ).

## Clinical Takeaways

- Adjunct IMT added to a structured TSE improves early trunk muscle endurance; ideal when rapid recovery is prioritized
- Modest IRD reductions across groups, regardless of exercise complexity or supervision
- Supervised TSEs appear important for neuromuscular adaptations, stability and endurance