**The effect of Swiss Ball training on core stability and running economy**

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**Introduction**

- Commonly utilised in rehabilitation and athletic conditioning
- Substantial anecdotal evidence regarding efficacy of Swiss Ball training (Barrett and Stengel, 1998; Carries, 1998)
- Limited empirical data
- Unstable base reduces force output (Baten et al., 2002)
- No Swiss Ball training studies relating to running
- Poor running technique related to poor core stability (Baten, 2002)
- Considered prudent to investigate benefits to runners

**Purpose**

To investigate the effect of short-term Swiss Ball training on core stability and running economy

**Methodology**

- 22 young male athletes (15.5 ± 1.4 years, 62.5 ± 4.7 kg, 29 skinfolds 78.9 ± 28.2 mm; VO₂max 55.3 ± 5.7 ml kg⁻¹ min⁻¹)
- Anthropometry, Sahrmann test, Swiss Ball Prone Stabilisation Core Stability Test (SBPSCST), VO₂max
- Surface EMG of RA, EO, ES during SBPSCST (Adler and McGill, 1997) analysed according to Sparto et al. (1997)
- Running economy at 60%, 70%, 80%, 90% VO₂max calculated using linear regression from VO₂/velocity curve
- Experimental group – 6 weeks supervised Swiss Ball program in conjunction with current sports training
- Control group – maintained current sports training
- 2 (group) x 2 (time) ANOVA with Post Hoc LSD (p<0.05)

**Results**

- Statistically significant main effect of group x time for Sahrmann test
- Statistically significant main effect of group x time for SBPSCST
- No statistically significant main effect of group or time for spectral analysis of EMG (LS, R² or IMF)
- No statistically significant main effect of group or time for VO₂max² vVO₂max or RE

**Discussion**

- 6 weeks of Swiss ball training has significant effects on core stability
- 6 weeks of Swiss ball training does not reduce muscular fatigue or improve run performance in young adolescent male athletes
- No support for anecdotal evidence
- Finding similar to that for swimming (Sobek et al., 2001)
- Effect of specificity, exercise selection, muscles analysed, surface EMG, training status of subjects, loading parameters of intervention

**Practical applications**

- Revision of common belief regarding Swiss Ball training
- Population specific findings
- Increase in core stability may warrant inclusion in prehabilitation training
- Assessment of core stability required
- Further research warranted

**References**


* (* result significantly different to control group post training result (p<0.05); # result significantly different to experimental group pre training result (p<0.05)*