

Effectiveness of Pilates and Yoga to improve bone density in adult women: A systematic review and meta-analysis

Fernández-Rodríguez, R.
Alvarez-Bueno, C.
Reina-Gutiérrez, S.
Torres-Costoso, A.
Arenas-Arroyo, S.N.D.
Martínez-Vizcaíno, V.

Abstract

Background The ageing population brings about the appearance of age-related health disorders, such as osteoporosis or osteopenia. These disorders are associated with fragility fractures. The impact is greater among postmenopausal women due to an acceleration of bone mineral density (BMD) loss. **Objective** To estimate the effectiveness of Pilates or Yoga on BMD in adult women. **Methods** Five electronic databases were searched up to April 2021. Randomized controlled trials (RCTs), non-RCTs and pre-post studies were included. The main outcome was BMD. Risk of bias was evaluated using the Cochrane risk of bias tool. A random effects model was used to pool data from primary studies. Subgroup analyses based on the type of exercise were conducted. **Results** Eleven studies including 591 participants aged between 45 and 78 years were included. The mean length of the interventions ranged from 12 to 32 weeks, and two studies were performed for a period of at least one year. The pooled effect size for the effect of the intervention (Pilates/Yoga) vs the control group was 0.07 (95% Confidence interval [CI]: -0.05 to 0.19; $I^2 = 0.0\%$), and 0.10 (95% CI: 0.01 to 0.18; $I^2 = 18.4\%$) for the secondary analysis of the pre-post intervention. **Conclusions** Despite of the non-significant results, the BMD maintenance in the postmenopausal population, when BMD detrimental is expected, could be understood as a positive result added to the beneficial impact of Pilates-Yoga in multiple fracture risk factors, including but not limited to, strength and balance.