

PILATES IMPROVES POSTURAL STABILITY AND DYNAMIC BALANCE IN SUBJECTS WITH LOW BACK PAIN

Susana Lopes; PT; Rua da Fonte, nº 8, Quinta do Perdigão 3780-595 Vilarinho do Bairro, Portugal; +351910505999; psusanalopes@gmail.com

Rui Costa, PT, PhD; School of Health, University of Aveiro, Campo Universitário de Santiago, 3810-193 Aveiro, Portugal; rcosta@ua.pt

Christophe Correia; PT, MSc; School of Health, University of Aveiro, Campo Universitário de Santiago, 3810-193 Aveiro, Portugal; chris2correia@gmail.com

Gonçalo Félix; PT; School of Health, University of Aveiro, Campo Universitário de Santiago, 3810-193 Aveiro, Portugal; gfelix@ua.pt

Mário Rodrigues; MSc; School of Health, University of Aveiro, Campo Universitário de Santiago, 3810-193 Aveiro, Portugal; mmpr@ua.pt

Mário Lopes; PT, MSc; School of Health, University of Aveiro, Campo Universitário de Santiago, 3810-193 Aveiro, Portugal; mlopes@ua.pt

Pedro Gonçalves; PhD; Porto Biomechanics Laboratory, University of Porto, Porto, Portugal; pgoncalves@fade.up.pt

Ana R. Cruz; PT, MSc; Póvoa de Varzim, Portugal; ritocas.cruz@gmail.com

Fernando Ribeiro; PT, PhD; School of Health, University of Aveiro, Campo Universitário de Santiago, 3810-193 Aveiro, Portugal; fernando.ribeiro@ua.pt

BACKGROUND: The Pilates method is popular way of exercise recommended for those with low back pain. Despite that, the immediate effects of Pilates exercises on postural stability and dynamic balance of subjects with non-specific low back pain has not yet been studied. The purpose of this study was to assess the immediate effectiveness of Pilates exercises on postural sway and dynamic balance of young adults with non-specific low back pain.

METHODS: Forty-six university subjects with non-specific low back pain participated in this randomized controlled trial. Participants were randomized to a Pilates (n = 23, 10 males; age: 21.8 ± 3.2 years; weight: 64.5 ± 11.5 kg; height: 1.70 ± 0.1 m) and a control group (n = 23, 9 males; age: 22.8 ± 3.6 years; weight: 62.5 ± 9.9 kg; height: 1.68 ± 0.1 m). Postural stability was assessed with a force plate and dynamic balance with the Star Excursion Balance Test, before and after the intervention or rest period. To assess postural stability, participants stood quiet on the force plate for 90s, with eyes closed on an unstable surface. The intervention lasted 20

min and consisted on 4 Pilates exercises: single leg stretch (level 1), pelvic press (level 1), swimming (level 1) and kneeling opposite arm and leg reach

RESULTS: At baseline, no differences were found between groups in postural stability and Star Excursion Balance Test. The Pilates group improved in all the postural sway values (CoPx: $p = 0.005$; CoPy: $p < 0.001$; total CoP oscillation: $p < 0.001$; area of CoP: $p = 0.002$ and velocity: $p < 0.001$) and in the Star Excursion Balance Test (anterior: $p = 0.001$; posteromedial: $p < 0.001$; posterolateral: $p < 0.001$ and composite: $p < 0.001$). The control group only improved velocity ($p = 0.009$) and total CoP oscillation ($p = 0.009$). However, the improvements in the Pilates group were significantly greater than those of the control group.

CONCLUSION: The Pilates method can be used by subjects with non-specific low back pain to improve postural stability and dynamic balance.