

## **Efficacy of whole-body vibration training on brain-derived neurotrophic factor, clinical and functional outcomes, and quality of life in women with fibromyalgia syndrome: a randomized controlled trial**

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This study aimed to investigate the efficacy of whole-body vibration training (WBVT) on blood brain-derived neurotrophic factor (BDNF) levels and determine the clinical and functional outcomes in patients with fibromyalgia syndrome (FMS). Thirty-two women with FMS were randomized into an intervention group (IG), receiving 6 weeks of WBVT, or a control group (CG) with no intervention. The outcomes at the baseline and follow-up in both groups included blood BDNF levels, sit-to-stand test (STS), 6-minute walk test (6MWT), Fibromyalgia Impact Questionnaire (FIQ), Pittsburgh Sleep Quality Index (PSQI), Beck Depression Inventory (BDI), and visual analogue scale (VAS). WBVT resulted in a group-by-time interaction effect. Thus, after the intervention time, the IG had increased blood BDNF levels ( $p=0.045$ ), a higher number of repetitions on the STS test ( $p=0.011$ ), and increased walking distance on the 6MWT ( $p=0.010$ ), compared to CG. Moreover, there was a reduction in the scores of the FIQ ( $p=0.001$ ), the PSQI ( $p=0.001$ ), the BDI ( $p=0.017$ ), and pain assessed using VAS ( $p=0.008$ ) in IG. The results demonstrate that WBVT promotes an increase in blood BDNF levels, with concomitant improvement in lower limb muscle strength, aerobic capacity, clinical symptoms, and quality of life in women with FMS. This trial is registered with Brazilian Clinical Trials Registry (REBEC; RBR-38nbbx) (<https://ensaiosclinicos.gov.br/rg/RBR-38nbbx>).

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