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Effects of Dragon Boating Intervention on Physical Function and Psychological Health of Breast Cancer Survivors

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Abstract

Exercise is important to counteract negative physical and emotional effects of breast cancer treatments. Dragon boating, a traditional sports event in China, has become a popular rehabilitation methods of breast cancer. This study examines effects of a dragon boating intervention on physical functioning and psychological health in breast cancer survivors. Breast cancer survivors (N = 40) were randomly assigned to an intervention (n = 20) or control group (n = 20). The intervention group participated in a dragon boating intervention twice a week over a period of 14 weeks, with each lasted for 75 minutes and at a rate of stroke < 60t/min. The control group received no intervention. Patients from both groups were measured at during 1 and 14 weeks on levels of physical functioning (30s arm curls for upper limb strength, shoulder range of motion for upper limb flexibility, 30s sit to stand for lower limb strength, sit and reach for lower limb flexibility, 4m leg lifting for aerobic endurance, and arm circumference for body circumference) and psychological health including self-efficacy (measured by German General-Self-Efficacy Scale), stress (by Perceived Stress Questionnaire; PSQ20), and fear and depression (by Hospital Depression Scale). Comparing pre- to post-intervention data, significant improvements were found for the upper limb strength test (+7.15%; p = 0.023), upper limb flexibility (+ 11.6%; $p = 0.008$) and aerobic endurance (+9.25; $p = 0.009$) in the dragon boating group. No changes in patient-reported outcomes, lower limb function and body circumference were observed following the 14 weeks study period in both groups ($p > 0.05$). Data analyses also showed a significant difference between both groups regarding the subscale "joy" ($p = .018$). Several significant results within the intervention group were seen in self-efficacy ($p = .014$), fear ($p = .009$) and the overall score for fear and depression ($p = .043$). Both groups improved significantly within "worries" ($p_{intervention} = .006$, $p_{control} = .019$) and the PSQ20 overall score (both ps = .005). The control group also significantly improved in the subscale for "demands" ($p = .019$). Our study showed that dragon boating intervention yielded significant improvements in upper limb strength, flexibility, aerobic endurance, and mental health level but not lower limb physical fitness, body circumference, or quality of life. The dragon boating alone may not be considered as being comprehensively effective enough to help breast cancer survivors regarding relevant physical and psychological issues, but it might be an important supplement within follow-up care. Future efforts may explore the effect of dragon boating intervention with different intensities on rehabilitation effect.

Keywords: dragon boating, physical function, physiological health, breast cancer