The Effect of Exercise on Inflammatory Factors in Breast Cancer Patients: A Meta-analysis

Lingling Qiu1,Ya-li Xu1,Song-hu Kong1, Jie-xiu Zhao2
1.P.E.College of Henan University
2.Department of Biology, China Institute of Sport Science

Objective Breast cancer is one of the most common malignant tumors that threaten the physical and mental health and even life-threatening of women worldwide. Chronic inflammation plays a key role in the occurrence, progression and recurrence of cancer. Several sources of evidence indicate that exercise during and after breast cancer could positively modulate the tumor microenvironment. The purpose of this meta-analysis is to determine the impact of exercise training on inflammatory factors in breast cancer patients.


And manually check the references in the article to identify additional articles. Examination of titles and abstracts of papers based on pre-set inclusion criteria. Eleven high-quality trials were included.

Results Pooled analyses revealed compared with the control group, the exercise group significantly improved the serum concentration of IL-8 (Z=0.07, SMD=-0.02, 95%CI:[-0.47,-0.44], p=0.946) and TNF-α (Z=2.10, SMD=-0.60, 95%CI:[-1.16,-0.04], p=0.036). No significant differences were found in the serum concentrations of IL-2 (Z=1.96, SMD=-0.69, 95%CI:[-1.37,0.00], p=0.05), IL-6 (Z=0.40, SMD=-0.12, 95%CI: [-0.69,0.45], p=0.686), IL-10 (Z=1.73, SMD=-0.45, 95%CI:[-0.95,0.06], p=0.084) or C-reactive protein (Z=0.18, SMD=-0.03, 95%CI:[-0.35,0.41], p=0.861).

Conclusions Exercise training can effectively improve some inflammatory factors in breast cancer patients and may affect tumor microenvironment. These findings provide a theoretical basis for the promotion of sports in this population.