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EFFECTS OF HIGH-INTENSITY INTERVAL WALKING TRAINING ON THIGH MUSCLE STRENGTH AND PHYSICAL FITNESS IN BREAST CANCER SURVIVOR: A RANDOMIZED CONTROLLED TRIAL

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During and after breast cancer treatment, many survivors experience unpleasant side effects such as nausea, fatigue, myalgia, arthralgia, osteoporosis and decreased cardiovascular function. These symptoms induced acute and long-term morbidity. The evidence suggests that physical activity and exercise after the diagnosis of breast cancer improves quality of life, cardiorespiratory fitness and physical function. Moreover, several observational studies also suggested that physical activity reduced breast cancer recurrence and breast cancer mortality. Various types of exercise regimens were reported. However, an effective exercise regimen remains unclear. Morishima et al (PLOS ONE, 2014) reported an exercise training system for middle-aged and older people featuring 1) interval walking training (IWT), 2) the use of a portable calorimeter, and 3) the e-Health Promotion System. Using the system, they found that middle-aged and older people who performed IWT for 5 months increased both thigh muscle strength and peak aerobic capacity for walking (VO_{2peak}) with the IWT groups than to a standard walking training groups. There have been no studies on breast cancer survivors. The purpose of this study was to examine whether the training system is helpful for breast cancer survivors to improve muscle strength, aerobic fitness. We hypothesized that impact of the system would be superior to the moderate intensity walking training group which assumed steps as index.

Participants in this trial were postmenopausal women diagnosed with stage 0-IIIa breast cancer who had had received rehabilitation after breast cancer surgery. We randomly divided into high-intensity interval walking training (IWT, n=14) and control (CNT, n=13). We measured the thigh muscle strength and VO_{2peak} before and after training term (6 months).

IWT improves muscular strength and VO_{2peak} with quantity of training less than CNT.

Thus, home-based walking training is feasible and effective for postmenopausal breast cancer survivors.

Key words: Interval Walking Training, Breast Cancer Survivor, Muscle Strength, Peak aerobic capacity