

44. SWACSM Abstract

Phase Angle is Associated with Muscular Fitness in Breast Cancer Survivors

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ABSTRACT

Phase angle (PhA) has emerged as a prognostic indicator of survival and quality of life (QOL) in cancer patients. Identifying measures of physical fitness that correlate with PhA can provide guidance towards optimizing cancer rehabilitation programs. **PURPOSE:** To examine the relationship between PhA and physical fitness (muscular strength, muscular endurance, cardiorespiratory endurance, flexibility, and body composition) in breast cancer survivors. **METHODS:** Seventy female breast cancer survivors (61 ± 9 years, PhA 4.57 ± 0.51) were referred to the rehabilitation clinic by their oncologist. Participants completed assessments for muscular strength (predicted 1-repetition maximum of incline bench press, seated cable row, latissimus dorsi pulldown, leg press, leg curl, leg extension, and hand grip strength), muscular endurance (chair squat test, and plank hold), cardiorespiratory endurance (treadmill predicted VO₂ peak), flexibility (sit and reach, back scratch test, and shoulder range of motion), and body composition (lean body mass, body fat %). PhA and body composition were measured using bioimpedance analysis (Inbody 770) at 50 KHz. The correlations between phase angle and measures of fitness were evaluated using Pearson coefficients. **RESULTS:** PhA was significantly and positively correlated with muscular strength (incline bench press, $r=0.54$, $p<0.0001$; leg press, $r=0.35$, $p=0.0027$; leg extension, $r=0.35$, $p=0.0038$) and muscular endurance (chair test, $r=0.29$, $p=0.0151$). PhA was not associated with cardiorespiratory endurance (VO₂ peak, $r=0.13$, $p=0.298$), flexibility (sit and reach, $r=-0.06$, $p=0.624$), and body composition (lean body mass, $r=0.06$, $p=0.6117$) in breast cancer survivors. **CONCLUSION:** Our study suggests that larger PhA values are related to higher levels of muscular strength and muscular endurance in breast cancer survivors, potentially due to superior bioelectrical signaling that accompanies enhanced neuromuscular function. PhA was not related to measures of cardiorespiratory endurance, flexibility, or body composition. Therefore, exercise interventions designed to improve PhA in breast cancer survivors should prioritize muscular fitness as it relates to higher PhA and potentially improved survival and QOL. Further research is needed to confirm these findings.