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Association Between Measures of Body Composition and Functional Movement in Cancer Survivors

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Body composition is known to change in individuals with a history of cancer. Cancer survivors may also have impairments in functional mobility, decreased overall strength, and increased risk of falls compared to those without histories of cancer. Currently, there is limited research comparing various measures of body composition with clinical mobility assessments. **PURPOSE:** The purpose of this study was to examine the relationships between measures of body composition and functional movement in cancer survivors. **METHODS:** Subject were 15 cancer survivors (6 male, 9 female), aged 65.1 ± 11.1 years and BMI 31.8 ± 9.6 kg/m^2. Body composition measures of skeletal muscle mass (SMM), skeletal muscle index (SMI), and percent lean body mass (%LBM) were assessed using an InBody770. Functional movement assessments included 8-foot Timed Up and Go (TUG), 6-meter gait speed walking at normal pace (normal GS) and as fast as comfortable (fast GS), and 30-sec Chair Stand (CS). **RESULTS:** Significant negative correlations were found between SMI and normal GS ($r = -0.532$, $p = 0.041$), SMM and fast GS ($r = -0.594$, $p = 0.020$), SMI and fast GS ($r = -0.684$, $p = 0.005$), SMM and CS ($r = -0.730$, $p = 0.002$), and SMI and CS ($r = -0.566$, p = 0,028). Significant positive correlations were found between SMM and TUG ($r = 0.751$ $p = 0.008$), SMI and TUG ($r = 0.614$, $p = 0.044$), and %LBM and fast GS ($r = 0.730$, $p = 0.002$). SMM and SMI showed positive correlations with body weight of $r = 0.902$ ($p < 0.001$) and $r = 0.882$ ($p < 0.001$), respectively. SMM and SMI showed positive correlations with BMI of $r = 0.744$ ($p = 0.001$) and $r = 0.926$ ($p < 0.001$), respectively. **CONCLUSIONS:** Results demonstrated that body composition indicators of LBM showed moderate to strong inverse relationships with functional assessments performance. Subjects in the current study with higher SMM and SMI produced lower scores on these assessments. However, they also had more body weight and higher BMIs than those with lower SMM and SMI and better functional scores. Therefore, the excess weight may have contributed to the poorer functional assessment scores. Future studies should examine these relationships further.