

## Abstract

**Title:** Body composition of patients with systemic sclerosis

**Objectives:** The aim of this study was to compare selected parameters of body composition in patients with systemic sclerosis (SSc) with a group of age- and sex-matched healthy individuals (CG). Another objective was to evaluate the effect of selected clinical parameters in patients with SSc on the detected variability of the parameters of body composition and on physical activity of patients.

**Methods:** The research group N = 95, group SSc (n = 59), control group (n = 36). Anthropometry (body height [cm], weight [kg], BMI [kg/m<sup>2</sup>]), bioelectrical impedance analysis – BIA 2000 (body fat - BF [%], total body water – TBW [%], lean body mass – LBM [kg], body cell mass – BCM [kg], BCM of FFM [%], the ECM / BCM); DEXA – Lunar Series iDXA (bone mineral density - BMD [g/cm<sup>3</sup>], lean body mass – LBM [kg] body fat – BF [%], visceral fat – VF [kg] questionnaire on physical activity Human Activity Profile. Statistics: T test/Mann-Whitney U test, Cohen's d/partial eta squared ( $\eta^2$ ).

**Results:** The results are presented as mean  $\pm$  SD: body height: SSc 166.5  $\pm$  7.1 cm, CG 171.2  $\pm$  8.3 cm; body weight: SSc 62.4  $\pm$  10.7 kg, CG 77.3  $\pm$  11.9 kg; BMI: SSc 22.4  $\pm$  4.3 kg/m<sup>2</sup>, CG 26.4  $\pm$  3.3 kg/m<sup>2</sup>; BF % BIA: SSc 24.6 %  $\pm$  7.8 %; CG 31.1 %  $\pm$  6.4 %; BF % DEXA: SSc 32.6  $\pm$  8.2 %, CG 37.2  $\pm$  6.6 %; % TBW BIA: SSc 55.2  $\pm$  5.7 %, CG 50.4  $\pm$  4.7 %; LBM BIA: SSc 47.7  $\pm$  7.0 kg, CG 53.2  $\pm$  8.7 kg; LBM DEXA: SSc 40.9  $\pm$  6.8 kg, CG 46.6  $\pm$  7.5 kg. BCM BIA: SSc 21.5  $\pm$  5.1 kg, CG 26.4  $\pm$  5.1 kg; ECM/BCM BIA: SSc 1.29  $\pm$  0.4; CG 1.03  $\pm$  0.1; BMD DEXA: SSc 1.05  $\pm$  0.11 g/cm<sup>3</sup>, CG 1.16  $\pm$  0.1 g/cm<sup>3</sup>; VF DEXA: SSc 0.54  $\pm$  0.5 kg, CG 0.9  $\pm$  0.9 kg.

**Conclusions:** Patients with SSc have significantly increased ECM/BCM, as well as significantly lower bone mineral density, and significantly decreased average percent body fat. Higher disease activity and/or greater severity and extent of involvement in SSc lead to decreased physical activity of the patients.

**Keywords:** systemic sclerosis, body composition, bio impedance, DEXA, physical activity

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