

## **BODY COMPOSITION IN HEAVY SMOKERS: COMPARISON OF SEGMENTAL BIOELECTRICAL IMPEDANCE ANALYSIS AND DUAL-ENERGY X-RAY ABSORPTIOMETRY**

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Smokers tend to have lower body mass index on one hand, and increased abdominal obesity on the other hand. Also, low lean mass (LM) and bone mineral content (BMC) were found among older smokers. This altered body composition and its consequences raise the need for simple and reliable methods for body composition assessment in smokers. To compare body composition assessment by segmental bioelectrical impedance analysis (sBIA) with the reference method, dual energy X-ray absorptiometry (DEXA), body composition was measured by sBIA (Tanita BC-545) and DEXA (Hologic) in 49 heavy smokers (>15 cigarettes/day, mean age 43.8). Comparison included correlations, differences between methods and Bland-Altman analysis. Whole-body fat mass (FM) and LM measured by the two methods correlated highly ( $r > 0.9$ ,  $p < 0.001$ ). Compared with DEXA, sBIA significantly overestimated whole-body LM and BMC (1126 g and 382 g, respectively,  $p < 0.01$ ). Bland-Altman analysis revealed good agreement for whole-body FM and LM but poor agreement for BMC. Segmental FM percentage and LM also correlated highly ( $r > 0.9$ ,  $p < 0.001$ ). However, sBIA significantly overestimated trunk and legs LM and underestimated appendicular FM percentage. Verified by DEXA, sBIA provides reliable measures of whole-body and trunk FM in heavy smokers. However, less agreement was found for BMC, appendicular LM and FM.