

# VALIDITY OF CONSUMER MODEL BIOIMPEDANCE ANALYSIS SYSTEM WITH ESTABLISHED DUAL ENERGY X-RAY ABSORPTIOMETRY (DXA).

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## Practical Implications:

- The Tanita consumer body fat monitors provide valid estimates of body composition, as do the previously validated professional models.
- Tanita consumer model BF% results correlate highly with DXA results and professional TBF BIA results.
- The consumer body fat models may be used as a tool in health assessment of persons varying in age and fitness levels.

## ABSTRACT

**Objective:** Bioimpedance Analysis (BIA) has demonstrated the ability to provide reliable estimates of body composition. The introduction of the TBF-105 and 305 clinical leg-to-leg BIA system have been of particular interest. Both clinical models have shown good agreement with criterion body composition methods, but there is currently no information on the validity of the consumer leg-to-leg BIA system. The current study aim was to evaluate the TBF 551 consumer leg-to-leg BIA system by comparing fat estimates with dual energy x-ray absorptiometry (DXA).

**Design:** Subjects were 83 healthy, weight stable persons varying widely in age ( $35.5 \pm 24.3$  yrs), BMI ( $24.3 \pm 6.8$  kg/m<sup>2</sup>) and fitness levels (recreational - competitive athlete).

**Results:** A high correlation was observed between the TBF-551 and TBF-305 leg-to-leg BIA systems ( $r^2=0.95$ ,  $p<0.001$ ,  $SEE=2.44$ ) Similarly, a high correlation with DXA fat estimates was observed for subjects tested with both leg-to-leg BIA systems. The results are presented in the following table:

	$r^2$	SEE	p-value
DXA Vs. TBF 551 % FAT	0.84	4.78	<0.001
DXA Vs. TBF 305 % FAT	0.84	4.37	<0.001

The results of the present study suggest that the consumer model provides valid estimates of body composition, as does the previously validated model, and may be used as a tool in health assessment of persons varying in age and fitness levels.

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