Using BIA method, VFA cannot be measured directly. However, with InBody’s high accuracy, it is possible to use the regression method to get accurate information of VFA.

According to the principle of BIA methodology, impedance of a cylinder is proportionate to its length but inversely proportionate to its area.\(^1\)

\[
\text{Impedance} = \rho \left( \frac{\text{Length}}{\text{Area}} \right) \quad \ldots \quad ^1
\]

\[
\text{Volume} = \text{Length} \times \text{Area} \quad \ldots \quad ^2
\]

\[
\text{Volume} = \rho \left( \frac{\text{Length}^2}{\text{Impedance}} \right) \quad \ldots \quad ^3
\]

With trunk impedance and height\(^*\), the volume of trunk is calculated\(^3\) and by substituting volume and length to the equation, area can also be found\(^2\).

\(^*\). Using total body height instead of segmental length does not cause significant changes.

VFA of InBody is predicted using the regression method. We measured VFA of subjects with CT scan and their impedance values as well. Then we came up with a related equation and confirmed its validity. It concerns impedance of trunk, body composition, age and gender.

1. VFA Scanning Location (Getting Area Using CT SCANNING)
Abdomen - Umbilical Level

Figure. Location of Abdomen CT

Figure shows the scanning location (2/2 line).
2. Validity Study of the InBody VFA

1) \(N=332 \; R=0.922 \; \text{SEE}=17.3\text{cm}^2\)

Total number of the Subjects: 332 (General people aging from 7 to 88)
SOMATOM PLUS 24 (SIEMENS, GERMANY, 1994) was used at Sanggye Paik Hospital of Inje University.

2) Cut off (100 cm\(^2\)) Reference


3) Bernardo Leo Wajchenberg., Subcutaneous and Visceral Adipose Tissue: Their Relation to the Metabolic Syndrome, Endocrine Reviews 2000 ; 21(6) : 697-738.


6) Bernardo Leo Wajchenberg, Subcutaneous and visceral Adipose Tissue: Their Relation to the Metabolic Syndrome. Endocrine Reviews 21(6): 697-738, 2000

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