

VAL 100 – Possible use of multifrequency Bioimpedance analysis in cardiac rehabilitation

OBJECTIVE: Performance is provided in Watts by cycle ergometers used in Hungary. The calculation of MET can be done precisely by using fat free mass, because the use of body weight underestimates the real performance. Our aim was to construct an equation to calculate body fat content based on waist circumference.

SUBJECTS /METHODS: Randomly selected patients admitted to the Cardiac Rehabilitation Unit of our hospital were measured with Quadscan4000 (Bodystat Ltd.). The measured body fat content was compared to a calculated value. Regression analysis was used to construct an equation and Student's T-test was used to compare the measured to calculated fat mass.

RESULTS: There were 74 patients measured: 39 in the first, 35 in the control group. The groups were comparable in gender ratio, age, average fat mass and waist circumference. Group 1 was used to create the equation, the control group served as test. The mean waist circumference (110±14.4 cm) shows a patient group metabolically at risk. The measured and the calculated fat mass in the group 1 showed a strong, positive, significant ($R_2=0.66$, $p<0.001$) correlation with each other. The measured values in the control group were compared to the calculated fat mass using the previously made equation. Significant differences could not be found (36.7 vs 40.0, $p=0.34$) between the two figures.

Characteristics of the groups (mean±SD).

Parameter	Group 1	Group 2 (Control)	Significance
Gender ratio (men)	35%	27.7%	NS
Age (years)	64±9.7	63±10.1	NS
Fat mass (kg)	36.8±12.2	36.7±12.3	NS
Waist circumference (cm)	110.4±14.4	112.8±15.0	NS

CONCLUSION We were able to create an equation using BIA in order to use a simple anthropometric measurement in making MET calculation more accurate. This equation seems to be useful in obese populations. We plan to use BIA further to construct equation for normal weight patients.

PUBLISHED: Presentation September 2011 at the ESPEN Congress in Sweden.

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