

# VAL 92 – An evaluation of phase angle, impedance ratio, and bioimpedance vector for assessing body composition and clinical outcomes in gastric bypass patients.



**OBJECTIVE:** To evaluate bioelectrical impedance analysis (BIA)-derived parameters for body composition and clinical outcomes assessment in Roux-en-Y gastric bypass (RYGB) patients.

**SUBJECTS /METHODS:** Women (BMI:  $46.7 \pm 6.4 \text{ kg/m}^2$ ) undergoing RYGB were measured pre-operatively (n=29) and at 6 weeks (n=20) and 1 year (n=20) post-surgery using multiple dilution and multi-frequency BIA.

**RESULTS:** Vector length (VL,50KHz) was negatively correlated with weight and fat-free-mass (FFM) at all time points and with muscle strength at pre-op and 1 year. At 6 weeks, phase angle (PA,50KHz) and the 200/5 kHz impedance ratio (IR) were correlated with strength ( $r=0.53$  and  $r=-0.63$ , respectively). The 12-month changes in total body water (TBW)/weight and extracellular water/weight were correlated positively with IR, and negatively with PA and VL change. Pre-operative IR, PA, and VL predicted weight ( $R^2=0.639$ ), FFM ( $R^2=0.368$ ), BMI ( $R^2=0.554$ ), and TBW/weight ( $R^2=0.430$ ) at 1 year by multiple linear regression. VL was greater among subjects with lower weight ( $P=0.002$ ), FFM ( $P=0.006$ ), BMI ( $P=0.008$ ), and intracellular water ( $P=0.011$ ) by paired  $t$ -tests at pre-op. The resistance-reactance graph vectors were normal for obese individuals and the percentage within the 75% tolerance ellipse increased from 31% pre-operatively to 78% at 1 year.

**CONCLUSION:** BIA parameters may be useful for assessing body composition in RYGB patients.

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**ORGANISATION:** <sup>1</sup>Dept of Food Science and Nutrition, University of Minnesota (UMN) – Twin Cities, USA, <sup>2</sup>Dept of Medicine, Endocrine Division, UMN, <sup>3</sup>Division of Biostatistics, School of Public Health, UMN, <sup>4</sup>Dept of Surgery, UMN, and <sup>5</sup>Dept Nutrition and Dietetics, VU University Medical Center, Amsterdam, The Netherlands

**RESEARCHES:** Carrie P. Earthman, PhD, RD<sup>1</sup>, Tiffany R. Beckman, MD, MPH<sup>2</sup>, Shalamar D. Sibley, MD, MPH<sup>2</sup>, William Thomas, PhD<sup>3</sup>, Lauren M. Beckman, MS, RD<sup>1</sup>, Jennifer R. Mager, PhD, RD<sup>1</sup>, Sayeed Ikramuddin, MD<sup>4</sup>, Todd A. Kellogg, MD<sup>4</sup>, Peter J.M. Weijs, PhD<sup>5</sup>, and Sarah A. Kunkel, BS<sup>1</sup>



Bodystat Ltd

Tel: +44(0)1624-629 571 Fax: +44(0)1624-611 544

E-mail: [Info@bodystat.com](mailto:Info@bodystat.com)

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