InBody studies in Obesity

2015. 11. 25 / InBody Co., Ltd / Clinical research team

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Proposal

1. Validity study
2. Optimal cut-off of percent body fat
3. Effect of bariatric surgery on body composition
4. Effect of therapy(exercise, food consumption, behavior change, etc)
5. Epidemiologic investigation(gene, etc)

Validity study

Validity study of BIA device for Fat free mass, fat mass, percent body fat

Validation Study of Multi-Frequency Bioelectrical Impedance with Dual-Energy X-ray Absorptiometry Among Obese Patients Faria SL et al Obes Surg 2014

Accuracy of segmental multi-frequency bioelectrical impedance analysis for assessign whole-body and appendicular fat mass and lean soft tissue mass in frail women aged 75 years and older M Kim and H Kim Eur J Clin Nutr 2013

Body composition measurements determined by air displacement plethysmography and eight-polar bioelectrical impedance analysis are equivalent in African American College students. WY So et al. HealthMed 2012

Assessment of body composition in peritoneal dialysis (PD) patients using bioelectrical impedance and dual-energy x-ray absorptiometry. Fürstenberg A, Davenport A. Am J Nephrol. 2011

Comparison of multifrequency bioelectrical impedance analysis and dual energy x-ray absorptiometry assessments in outpatient hemodialysis patients. Fürstenberg A, Davenport A. Am J Kidney Dis 2011

Accuracy of direct segmental multi-frequency bioimpedance analysis in the assessment of total body and segmental body composition in middle-aged adult population. Ling CH et al. Clin Nutr. 2011

Cross-calibration of multi-frequency bioelectrical impedance analysis with eight-point tactile electrodes and dual-energy X-ray absorptiometry for assessment of body composition in healthy children aged 6 – 18 years. Jung S. Lim et al Pediatrics International 2009

Validity study

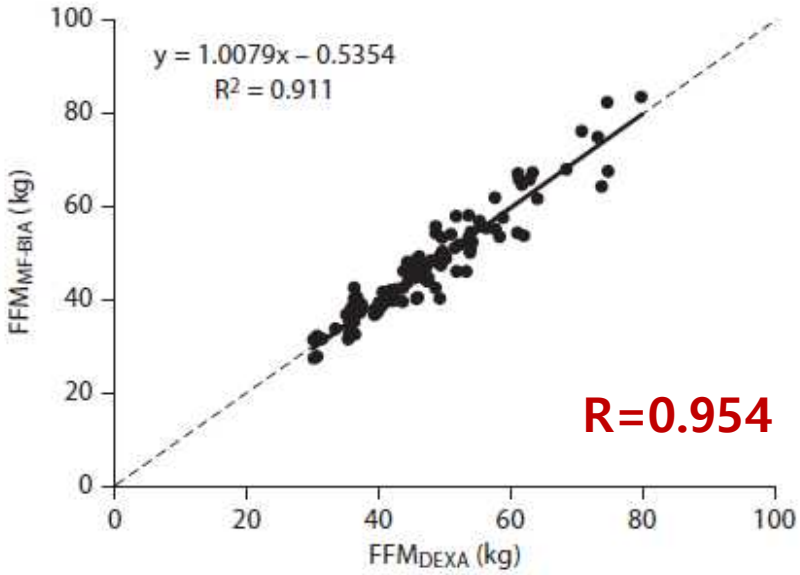
American Journal of Nephrology

Original Report: Patient-Oriented, Translational Research

Am J Nephrol 2011;33:150–156
DOI: 10.1159/000324111

Received: November 11, 2010
Accepted: January 5, 2011
Published online: February 3, 2011

Assessment of Body Composition in Peritoneal Dialysis Patients Using Bioelectrical Impedance and Dual-Energy X-Ray Absorptiometry



InBody vs. DEXA (Fat free mass)

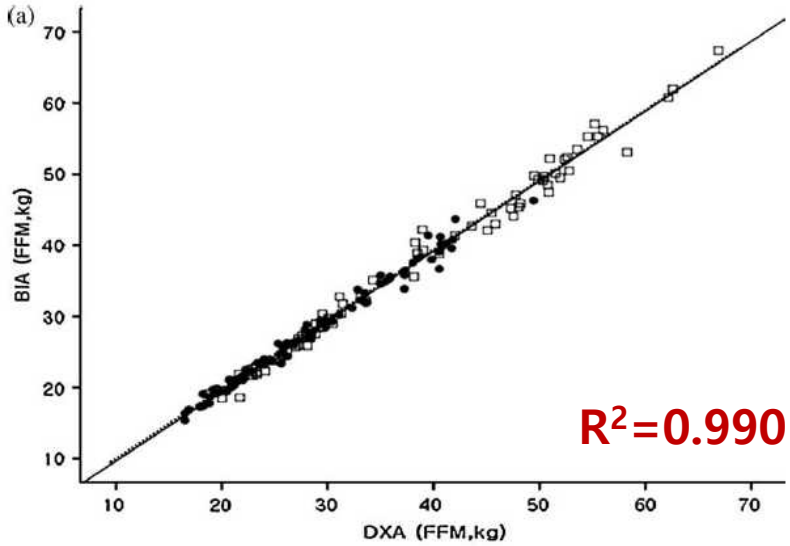
Am J Nephrol. 2011;33(2):150-6

Validity study

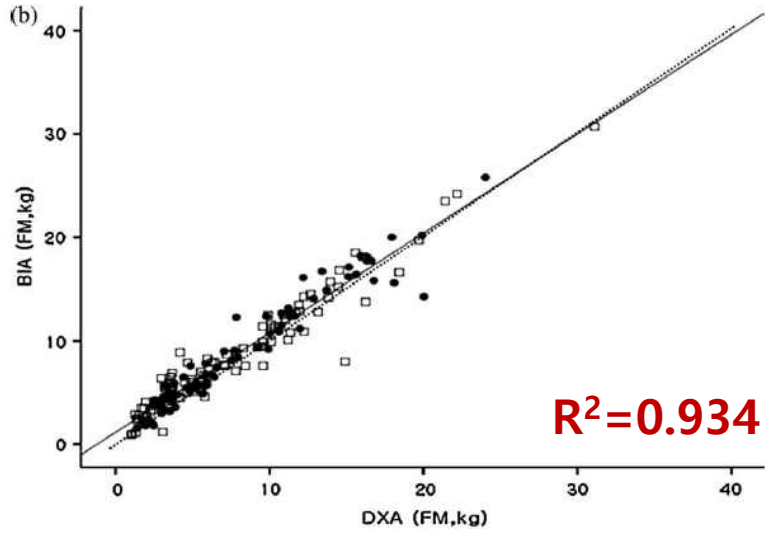
Pediatrics International (2009) **51**, 263–268 doi: 10.1111/j.1442-200X.2008.02698.x

Original Article

Cross-calibration of multi-frequency bioelectrical impedance analysis with eight-point tactile electrodes and dual-energy X-ray absorptiometry for assessment of body composition in healthy children aged 6–18 years



InBody vs. DEXA (Fat free mass)



InBody vs. DEXA (Fat Mass)

Pediatr Int. 2009 Apr;51(2):263-8

Validity study

Validity study of BIA device for visceral fat

InBody720 as a new method of evaluating visceral obesity. H Ogawa et al. Hepato-Gastroenterology 2011; 58:42-44

Validity study

InBody 720 as a New Method of Evaluating Visceral Obesity

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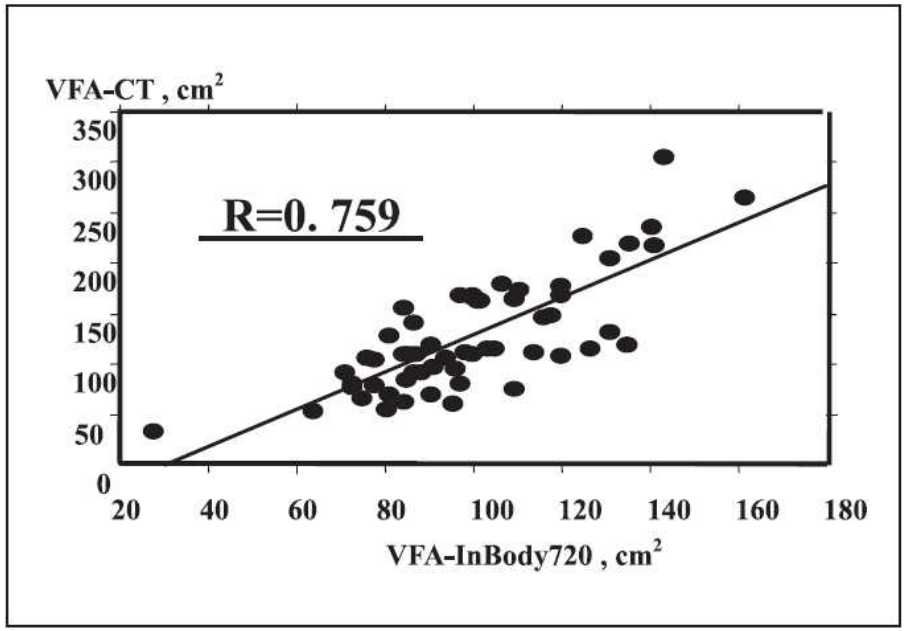


FIGURE 3 A scatter plot of VFA.

Hepato-Gastroenterology 2011; 58:42-44

Optimal cut-off of percent body fat

Collecting reference data for Obesity diagnosis

Optimal cutoffs of percentage body fat for predicting obesity-related cardiovascular disease risk factors in Korean adults. CH Kim et al. Am J Clin Nutr 2011

Optimal cut-off of percent body fat

Optimal cutoffs of percentage body fat for predicting obesity-related cardiovascular disease risk factors in Korean adults[1–3]

Chul-Hyun Kim, Hye Soon Park, Mira Park, Hyeoijin Kim, and Chan Kim

ABSTRACT

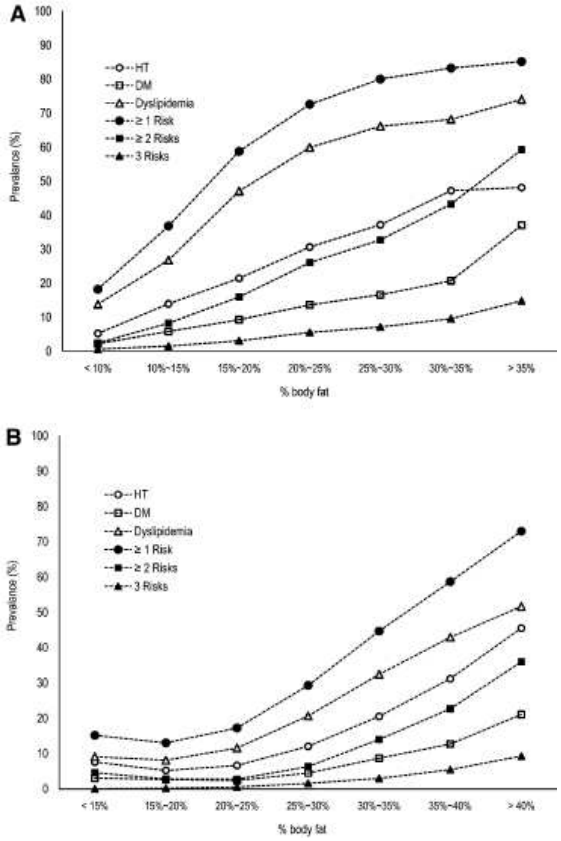
Background: Obesity is a major health problem. It is associated with cardiovascular disease. The diagnosis of obesity is crucial to treating and preventing obesity-related medical problems.

Objective: The objective was to determine optimal percentage body fat cutoffs in Korean adults for predicting obesity-related cardiovascular disease risk factors.

Design: We evaluated the body composition and prevalence of obesity-related cardiovascular risk factors, such as hypertension, diabetes mellitus, and dyslipidemia, in 41,088 Korean adults aged 18–92 y. The optimal percentage body fat cutoffs for Korean adults were determined. Multivariable-adjusted odds ratios (ORs) of overweight and obesity were estimated by logistic regression.

Results: The first cutoffs in men and women were 17% and 32% body fat, respectively; the second cutoffs were 21% and 37% body fat, respectively. The percentages of obese men and women were 41.8% and 15.9%, respectively. The adjusted OR of at least one risk factor for overweight or obesity in men was 2.22 (95% CI: 2.07, 2.38) or 4.05 (95% CI: 3.78, 4.33). The adjusted OR for women was 1.95 (95% CI: 1.79, 2.07; $P < 0.0001$) or 3.21 (95% CI: 2.87, 3.57).

Conclusions: Only one-fourth of Korean men had a normal body composition, whereas most of the Korean women had a normal body composition. We conclude that susceptibility to cardiovascular disease and its risk factors is higher in Korean men than in Korean women. The cutoffs are useful for providing adequate guidelines for treating and preventing cardiovascular disease. This was the first study to determine cutoffs of percentage body fat for Korean adults. *Am J Clin Nutr* 2011;94:34–9.



한국인 41,088명을 대상으로 인바디 측정하여 체지방률의 cutoff 기준을 마련하고자 한 논문.

이 결과를 통해 한국의 경우 남성 35%, 여성 30%를 비만 기준으로 보고 있다.

Am J Clin Nutr 2011;94(1):34-39

Effect of bariatric surgery on body composition

Monitoring body composition change for surgery

Prevalence of nonalcoholic steatohepatitis in japanese patients with morbid obesity undergoing bariatric surgery J Gastroenterol 2015

Effect of bariatric surgery on both functional and structural measures of premature atherosclerosis European Heart Journal 2009

Biliopancreatic diversion with duodenal switch improves insulin sensitivity and secretion through caloric restriction Obesity 2014

Differential effects of laparoscopic sleeve gastrectomy and laparoscopic gastric bypass on appetite, circulating acyl-ghrelin, peptide YY3-36 and active GLP-1 levels in non diabetic humans Obes Surg 2014

Long-term effects of pronounced weight loss after bariatric surgery on functional and structural markers of atherosclerosis Obesity 2013

Energy expenditure before and after Roux-en-Y gastric bypass Obes Surg 2012

Effect of bariatric surgery on circulating chemerin levels Eur J Clin Invest 2010

Effect of therapy

Monitoring body composition change for therapy

Effects of intensive lifestyle intervention and gastric bypass on aortic stiffness: A 1-year nonrandomized clinical study. Obesity 2015

Effect of a 12-week weight management program on the clinical characteristics and dietary intake of the young obese and the contributing factors to the successful weight loss. Nutrition Research and Practice 2014

Effectiveness of 6 Months of Tailored Text Message Reminders for Obese Male Participants in a Worksite Weight Loss Program: Randomized Controlled Trial. JMIR mHealth and uHealth 2015

Antioxidative Activity of Onion Peel Extract in Obese Women: A Randomized, Double-blind, Placebo Controlled Study J Cancer Prev 2015

A calorie-restriction diet supplemented with fish oil and high-protein powder is associated with reduced severity of metabolic syndrome in obese women. European Journal of Clinical Nutrition. 2014

Weight reduction in obese correlates with low morning cortisol increase. Journal of exercise physiology 2014

Effect of zinc supplementation on insulin resistance and metabolic risk factors in obese Korean women. Nutrition Research and Practice. 2012

The Effect of Dietary Glycemic Index on Weight Maintenance in Overweight Subjects: A Pilot Study. Obesity 2008

Epidemiologic investigation

Collecting data in Big population

Association between the SPRY1 gene polymorphism and obesity-related traits and osteoporosis in Korean women Molecular Genetics and Metabolism 2013 **n=3,013**

Metabolic Health Is a More Important Determinant for Diabetes Development than Simple Obesity: A 4-Year Retrospective Longitudinal Study PLoS ONE 2014 **n=6,745**

Age-related changes in basal substrate oxidation and visceral adiposity and their association with metabolic syndrome Eur J Nutr 2015 **n=2,819**

Reference Values and Age Differences inBody Composition of Community-DwellingOlder Japanese Men and Women: A Pooled Analysis of Four Cohort Studies PLoS ONE 2015 **n=4,478**