

- criteria for 'obesity disease' in Japan. *Circ J* 66 (11) : 987—992, 2002.
- 9) Stamler R, Stamler J, Riedlinger WF, et al: Weight and blood pressure. Findings in hypertension screening of 1 million Americans. *JAMA* 240 (15): 1607—1610, 1978.
  - 10) Pouliot MC, Després JP, Nadeau A, et al: Visceral obesity in men. Associations with glucose tolerance, plasma insulin, and lipoprotein levels. *Diabetes* 41 (7): 826—834, 1992.
  - 11) Larsson B, Björntorp P, Tibblin G: The health consequences of moderate obesity. *Int J Obes* 5 (2): 97—116, 1981.
  - 12) Hubert HB, Feinleib M, McNamara PM, Castelli WP: Obesity as an independent risk factor for cardiovascular disease: a 26-year follow-up of participants in the Framingham Heart Study. *Circulation* 67 (5): 968—977, 1983.
  - 13) Cui R, Iso H, Toyoshima H, et al: JACC Study Group: Body mass index and mortality from cardiovascular disease among Japanese men and women: the JACC study. *Stroke* 36 (7): 1377—1382, 2005.
  - 14) Kadowaki T, Yamauchi T, Kubota N, et al: Adiponectin and adiponectin receptors in insulin resistance, diabetes, and the metabolic syndrome. *J Clin Invest* 116 (7): 1784—1792, 2006.
  - 15) Hiuge-Shimizu A, Kishida K, Funahashi T, et al: Absolute value of visceral fat area measured on computed tomography scans and obesity-related cardiovascular risk factors in large-scale Japanese general population (the VACATION-J study). *Ann Med* 44 (1): 82—92, 2012.
  - 16) 大野 誠, 池田義雄: 肥満の判定法と治療指針. *Prog Med* 13 (1) : 7—19, 1993.
  - 17) Shigetoh Y, Adachi H, Yamagishi S, et al: Higher heart rate may predispose to obesity and diabetes mellitus: 20-year prospective study in a general population. *Am J Hypertens* 22 (2): 151—155, 2009.
  - 18) 田中喜代次, 田中英和, 大蔵倫博, 他: 有酸素性運動およびエネルギー摂取制限が腹部脂肪面積に与える影響. *肥満研* 5 (1) : 40—45, 1999.

---

別刷請求先 〒800-0296 福岡県北九州市小倉南区曾根北町1-1  
九州労災病院勤労者予防医療センター  
井元 淳

**Reprint request:**

Atsushi Inomoto  
Kyushu Rosai Hospital Center for Preventive Medicine, Japan Labour Health and welfare Organization, 1-1, Soneki-tamachi, Kokura-minamiku, Kitakyushu-city, Fukuoka, 800-0296, Japan

### Examination of the Factors to Affect the Visceral Fat Area in Workers —Examination in Visceral Fat Area Measuring Equipment DUALSCAN—

Atsushi Inomoto, Toshihiro Toyonaga, Junko Deguchi and Rika Fukuda  
Kyushu Rosai Hospital Center for Preventive Medicine, Japan Labour Health and welfare Organization

We performed a noninvasive health measurement from the viewpoint of worker medical care in our facility and added visceral fat mass measurement that increased more importance in recent years. The purpose of this study was to examine the factors to affect visceral fat area (VFA) and the usefulness of the VFA measurement in company workers who carried out the health measurement which included VFA measurement with DUALSCAN. The study was conducted in 124 male workers, average age of  $49.7 \pm 8.9$  years from 4 companies. The multiple stepwise linear regression analysis was performed with VFA as the dependent variable and the factors which were decided from the health measurement, which included a medical questionnaire, body composition data, VFA measurement as the independent variables. In addition, we decided subjects with  $VFA \geq 100 \text{ cm}^2$  as the VFA risk group and subjects with  $VFA < 100 \text{ cm}^2$  as the VFA non-risk group. Sensitivity, specificity, cut-off point and AUC (Area Under the Curve) were calculated about variables chosen for the multiple regression analysis using the analysis with the ROC curve, with VFA risk or non-risk as the state variable. As a result of the multiple regression analysis, VFA was significantly correlated with abdominal circumference (AC) HR, body fat percentage, and trunk muscle rate. AC was extracted as the factor most related to VFA as previous research shows, and the effectiveness of VFA measurement in DUALSCAN was also shown. But the measurements may be underestimated a little. The nutrition education, aerobic exercise instruction, and exercise instruction of the muscle strengthening exercise for the improvement of trunk muscle rate together were shown to be necessary for weight loss. It is also necessary to pay close attention to HR at the time of exercise prescription because HR was shown to be high in subjects with high VFA.

(JJOMT, 62: 197—201, 2014)