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Best fat depots determined by Dual-energy X-ray Absorptiometry (DXA) to be associated with cardiovascular risk, and insights to improve fat distribution: Korea National Health and Nutrition Examination Survey (KNHANES) 2008-2010

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Objectives: There have been few studies to identify the best fat depots using dual-energy X-ray absorptiometry to be associated with cardiovascular (CV) risks, particularly in large community-dwelling population.

Methods: We used data from 15494 adults in Korean National Health and Nutritional Examination Survey 2008-2010. Studied factors were four fat depots (trunk, leg, arm, and head), and outcomes were high CV risk and metabolic derangements.

Results: : As trunk and head fat increased, and leg and arm fat decreased, the odds for high CV risk increased. In receiver operating characteristics (ROC) analysis, leg fat showed the largest under the curve (AUC) among four fat depots for high CV risk. In multivariate logistic regression, increased trunk and arm fat, and decreased leg fat were associated with increased odds for high CV risk. In addition, increased trunk and decreased leg fat revealed consistent metabolic hazard. In ROC analysis, trunk fat showed the largest AUC among four fat depots for various metabolic derangements. Pork, banana, rice wine, and barley intake were associated with increased odds for high trunk fat, while noodle, tomato, and citrus intake were associated with increased odds for high leg fat. Persimmon intake was associated with decreased and increased odds for high trunk and leg fat, respectively.

Conclusions: Leg and trunk fat were the best fat depots to be associated with high CV risk and metabolic derangement, respectively. Persimmon intake was simultaneously related to decreased trunk fat and increased leg fat.