

〈原 著〉

女性の皮下脂肪量の季節変動に関する実態解析

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Analysis on the Seasonal Change of Subcutaneous Fat Mass in Women

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Abstract

Excess accumulation of body fat causes various health and aesthetic problems. However, systematic investigation of physiological variation of subcutaneous fat mass, seasonal variation in particular, has been insufficiently investigated. In this study, we investigated seasonal change of subcutaneous fat mass in women in their 20–30's, using Magnetic Resonance Imaging (MRI) and ultrasonography B mode, in comparison with the visceral fat mass, energy intake, blood lipid level, and leptin level. In 13 healthy females (mean age : 29.3 years old) who maintained their conventional life-style, a dietary survey, measurements of physical profile and subcutaneous fat mass, and blood analysis were performed in September, January, April, and July. Body weight, percentage body fat, the subcutaneous fat mass and subcutaneous fat thickness of the abdomen were highest in January, and lowest in July. Their differences between values of two seasons were statistically significant. The visceral fat mass and the subcutaneous fat thickness of thigh changed similarly, but the visceral fat mass in July was higher than in September. Calorie intake was high in September and April, the serum triglyceride level was high in September, and the plasma leptin level reached peaks in July and September. These changes were not related to the changes of body weight and adipose tissue mass. In this research, the subcutaneous fat mass increased in fall to winter and decreased in spring to summer, and the seasonal change was similar to visceral fat and was more marked in abdominal portion. Based on these findings, there may be some systematic or local regulatory mechanism that maintains, increases or decreases adipose tissue mass according to seasonally changes in circumferences and life manner. Seasonal change of body appearance was not clear, but relationship between physiological changes of body shape and adipose tissue mass, and affecting factors could be revealed by investigations using more detailed form measurement technique and quantitative analysis of energy metabolism.

Key words: subcutaneous, fat, seasonal change, MRI, ultrasonography.