

# 5<sup>th</sup> Asian Obesity Specialists & Endocrinologists Annual Meeting

July 11-12, 2016 Kuala Lumpur, Malaysia



## *Shuzo Kumagai*

*Kyushu University, Japan*

### **Dietary obesity-resistance and muscle oxidative enzyme activities of the fast-twitch fiber dominant rat**

The purpose of the present study was to clarify whether the muscle fiber composition and/or muscle oxidative enzyme activity are related to dietary body weight gain and abdominal fat accumulation. Genetically fast-twitch fiber dominant rats (FFDR) and control rats (CR) were divided into low-fat or high-fat diet groups: CR with a low-fat diet (CL); CR with a high-fat diet (CH); FFDR with a low-fat diet (FL); and FFDR with a high-fat diet (FH). After 6 weeks of following such diets, the body weight gain, abdominal fat content, food intake, muscle fiber composition and oxidative enzyme activities were estimated. The body weight gain in CH was higher than in the other groups and percentage abdominal fat in CH was also higher than in the other groups, while the energy intake did not differ among the groups. The percentage of type IIX fibers of M. gastrocnemius in FL and FH were higher than in CL and CH, and the type IIA fibers of M. soleus in FL and FH were higher than in CL and CH. The citrate synthase activity of M. plantaris in FL and FH were higher than CL.  $\beta$ -HAD activity in FL and FH were higher than in CL and that in FH was higher than CH. On the other hand, the enzyme activities of M. gastrocnemius and soleus were identical among the groups. The FFDR was more obesity-resistant than the CR after a high-fat diet. These results suggest that the muscle oxidative capacity rather than muscle fiber composition is a possible determinant of obesity.

### **Biography**

Shuzo Kumagai has completed his PhD degree from Saga Medical School, Japan. His research area includes health and exercise epidemiology for metabolic syndrome, cognitive decline, dementia, and mortality in community-dwelling population. He is a Director of Institute of Health Science (2012-2013) in Kyushu University. He is also a Chairman (1999-2011) and Chief Editor (2011-2015) of Japanese Association of Health Promotion, and Vice President (1999-2011) and Chief Editor (2006-2010) in Japanese Society of Exercise Epidemiology. He has published more than 100 papers including review paper in reputed journals.

[shuzo@ihs.kyushu-u.ac.jp](mailto:shuzo@ihs.kyushu-u.ac.jp)