

Assessment of the relationship between protein consumption and development of glucose metabolism disturbances

in carriers of some common single nucleotide polymorphisms in gene BDNF (rs10835211)

Urszula Krasowska¹, Edyta Adamska-Patruno¹, Witold Bauer², Przemysław Czajkowski¹, Joanna Fiedorczuk¹, Monika Moroz¹, Maria Górka³, Adam Krętowski^{1,2,3},

1. Department of Nutriomics, Clinical Research Center, Medical University of Białystok, Poland . 2. Clinical Research Center, Medical University of Białystok, Poland. 3. Department of Endocrinology, Diabetology and Internal Medicine, University Clinical Hospital in Białystok, Poland. urszula.krasowska@umb.edu.pl

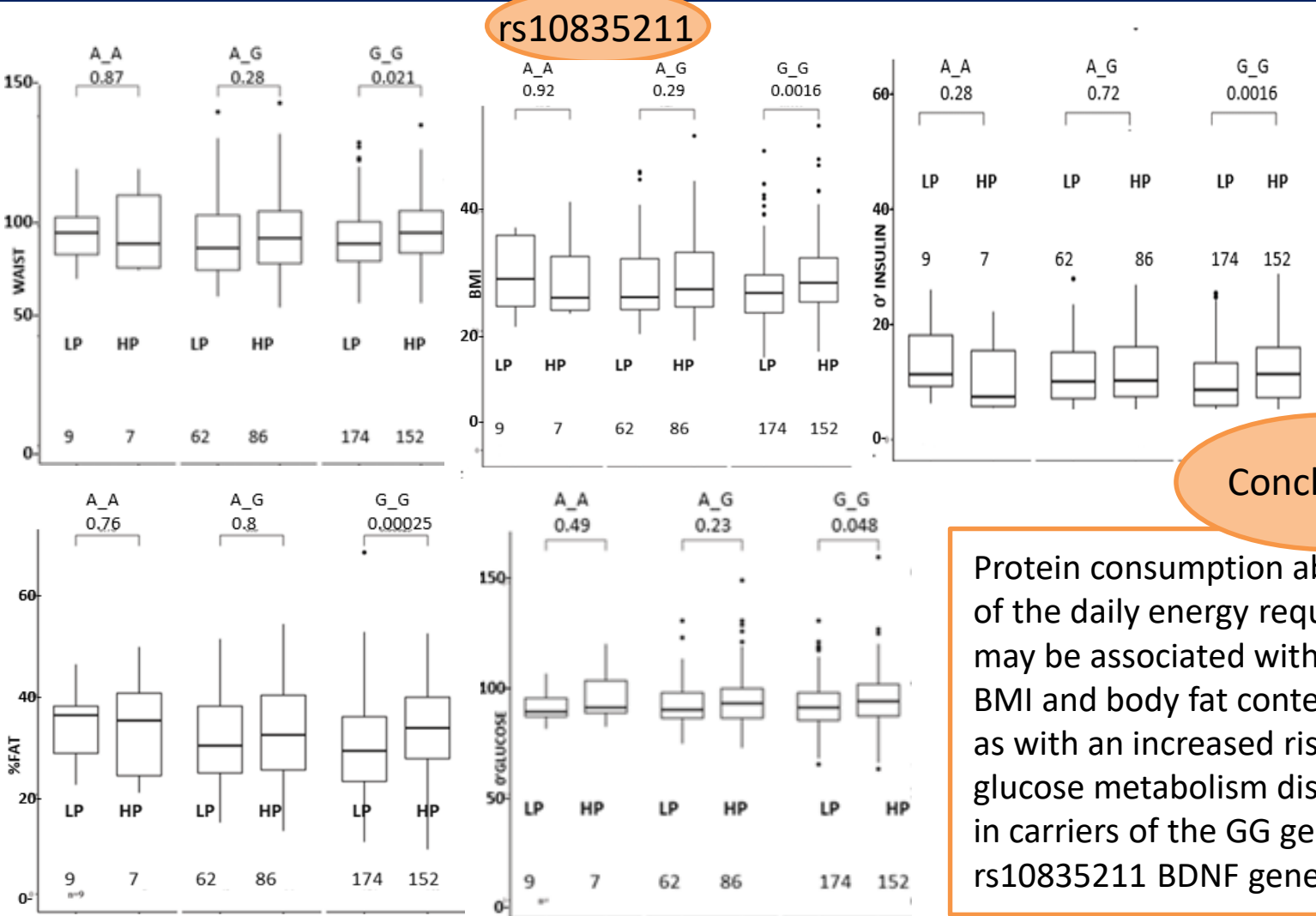


Objectives

Association between rs10835211, lower (LP) and higher (HP) than median dietary protein intake ($\leq 18\%$ and $>18\%$ of total energy intake, respectively) and the risk of glucose metabolism disturbances.

Methods

- 490 participants from 1000PLUS Cohort Study
- 4 BDNF polymorphisms: rs6265, rs4923461, rs10501087, rs10835211 (strong linkage disequilibrium)
- Daily macronutrient intake - three-day food diary.
- Oral Glucose Tolerance Test (OGTT), anthropometric measurements
- Genotyped with TaqMan SNP technology
- Daily physical activity- International
- International Physical Activity Questionnaire Long



Conclusions

Protein consumption above 18% of the daily energy requirement may be associated with higher BMI and body fat content, as well as with an increased risk of glucose metabolism disturbances in carriers of the GG genotype of rs10835211 BDNF gene.

Figure 1. Association of dietary protein intake $\leq 18\%$ and $>18\%$ of total daily energy intake with A- waist circumference (cm) B- Body mass index (kg/m²) C total body fat content D fasting blood glucose levels (mg/dL) E fasting insulin levels (IU/mL) in the BDNF rs 10835211 genotype carriers The differences in median values of the selected responses and the interquartile ranges (in different genotypic and dietary strata are presented