

BODY COMPOSITION-SPECIFIC DIFFERENCES IN POSTPRANDIAL GLYCEMIC RESPONSE TO SHORT-TERM CONSUMPTION OF WINE IN HEALTHY YOUNG MEN

**Marianna Schwarzová^{1*}, Katarína Fatrcová-Šramková¹, Miroslava Kačániová²,
Eva Tvrdá³, Eftimová Zuzana⁴, Ján Brindza^{4,5}**

¹Department of Human Nutrition, Faculty of Agrobiological and Food Resources, Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 94901 Nitra, Slovak Republic

²Department of Fruit Science, Viticulture and Enology, Faculty of Horticulture and Landscape Engineering, Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 94901 Nitra, Slovak Republic

³Department of Animal Physiology, Faculty of Biotechnology and Food Sciences, Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 94901 Nitra, Slovak Republic

⁴Institute of Biodiversity and Biosafety, Faculty of Agrobiological and Food Resources, Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 94901 Nitra, Slovak Republic

⁵Department of Genetics and Plant Breeding, Faculty of Agrobiological and Food Resources, Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 94901 Nitra, Slovak Republic

*e-mail: marianna.schwarzova@gmail.com

Abstract

The consumption of alcohol-containing drinks has become an accepted part of lifestyle in most societies. The health effect of alcohol, however, has always been subjected to debate. This study was designed to evaluate the metabolic response to wine. We investigated the acute effects of wine on glucose response and other metabolic parameters before and after short term moderate alcohol consumption in healthy young subjects.

In this study, 150 mL (≈ 18 g alcohol/portion) of wine (Tokaj selection 4-putton) was served as a separate drink in an intermittent mode for 14 days (1 period: 5 days consumption, 2 days break) to young healthy men ($n = 10$, aged 20 to 29 years, with body mass index (BMI) 28.07 ± 3.8 kg/m²). On 5 separate occasions, fingertip capillary blood samples were taken at regular intervals over 2 - 3 h. Body composition were assessed by bioelectrical impedance analyze. Statistical analysis was performed using statistical software Statistica 10.0 (StatSoft Inc., USA). ANOVA was used to determine the association of body fatness with glycemic response.

There were no significant ($P > 0.05$) differences between lean men and overweight/obese subjects in fasting glucose, averaging 4.36 ± 0.08 mmol/L and 4.78 ± 0.19 mmol/L, respectively. Glucose levels showed significant changes over time after wine consumption in both groups ($P < 0.001$). At the time point 60 min., we observed significantly ($P = 0.031$) higher glucose level in the group of overweight/obese men compared to the lean. The group of men with high visceral fat content showed higher glucose levels over all time compared to lean men, but differences between groups were not significantly ($P = 0.871$). Glycemic response to Tokaj wine ingestion was reduced more in lean men compared to overweight/obese men.

The positive effects of wine consumption may vary depending on the biologically active substances in wine, in particular due to their amount, bioavailability, absorption, sensitivity of the organism, diversity of nutrition patterns, condition and age, and other factors. The effect of alcohol on adipose tissues is less clear. For these reasons, this topic requires further careful research.

Key words: Glycemic response, Insulin, Glycated hemoglobin, Tokaj wine, Visceral fat, Young healthy men.