

## Posters

### Effect of 'pre-dinner drinks' on postprandial glycemia and insulinemia in lean young adults

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**Background** - Moderate alcohol consumption has been associated with decreased incidence of type 2 diabetes and cardiovascular disease. Alcohol has been shown to have beneficial effects on glycaemia when consumed with a meal but little is known about its effect when consumed as a 'pre-dinner' drink.

**Objective** - The present study aimed to determine how two standard drinks of alcohol (20 g), consumed one hour before a meal, would affect the glycaemic and insulinaemic responses to that meal.

**Design** - Eighteen young, healthy volunteers (8M, 10F) participated. Each subject consumed three types of alcoholic beverages (435g beer, 180g white wine and 54g gin with 200g diet tonic water) as well as two reference water drinks in random order one hour prior to a high glycaemic index meal. A standard breakfast was consumed at 8 am, followed by the 'pre-dinner' drinks at 10 am and the standard lunch meal at 11 am. Blood samples were taken at baseline then 15, 30, 45, 60, 90 and 120 minutes after the lunch meal.

**Outcomes** - Taking the average plasma glucose incremental area under the curve (iAUC) after water as 100, the iAUC for beer, wine and gin were  $67 \pm 5$  (mean  $\pm$  SEM),  $75 \pm 6$  and  $78 \pm 4$ , respectively (all differences  $P < 0.001$ ). The mean peak blood glucose for the meal after beer ( $8.3 \pm 0.2$ ), wine ( $8.5 \pm 0.2$ ) and gin ( $8.6 \pm 0.2$ ) were significantly lower ( $P < 0.001$ ) than after water ( $9.3 \pm 0.2$ ). Conversely, plasma insulin iAUC for the meal after beer ( $106 \pm 5$ ), white wine ( $111 \pm 11$ ) and gin ( $133 \pm 10$ ) were all higher than after the reference drink and this difference was significant between water and gin ( $P = 0.028$ ).

**Conclusion** - The study suggests that 'pre-dinner' drinks lower the glycaemic response to a meal by increasing insulin secretion and/or insulin sensitivity. Reducing glucose 'spikes' and overall postprandial glycemia may be one mechanism by which alcohol consumption reduces risk of type 2 diabetes and cardiovascular disease.

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### Effect of yeast $\beta$ -glucan on serum lipids and leptin levels in the diet-induced obese rats

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**Background** -  $\beta$ -glucan are present in a variety of living systems, including fungi, yeasts, algae, bacteria and higher plants. The effect of  $\beta$ -glucan on blood lipids have been studied in hyperlipidemic or obese humans and animals, however, the results on hypolipidemic effects are controversial.

**Objective** - To investigate the yeast  $\beta$ -glucan is able to decrease adiposity and post-prandial lipaemia in obese rats induced by high fat diet, thus clarifying whether supplementation of yeast  $\beta$ -glucan has anti-obesity effect.

**Design** - To determine whether the yeast  $\beta$ -glucan have the hypolipidemic effects, 4 wk old Sprague Dawley male rats fed high fat diet (40% of calories as fat) for 6 wks to induce obesity, and subsequently fed 1% or 5% yeast  $\beta$ -glucan for further 6 wk. For the comparison, normal CON group (11.7% of calories as fat) fed AIN-76A diet.

**Outcomes** - Supplementation with yeast  $\beta$ -glucan resulted in a significant reduction of food efficiency ratio (FER), white fat (visceral and peritoneal fat) mass, serum triglyceride, total cholesterol, free fatty acid, and leptin level. The adipocyte size of rats fed high fat diets was significantly higher ( $P < 0.05$ ) by 198% than that of CON group at 16 weeks of age. Adipocyte size was significantly reduced ( $P < 0.05$ ) by 1% yeast  $\beta$ -glucan diet (157%) and 5% yeast  $\beta$ -glucan diet (135%).

**Conclusions** - The present results show that yeast  $\beta$ -glucan supplementation to the diet is beneficial for the suppression of diet-induced obesity and hyperleptinemia, and also suggest that food intake controlling effect of dietary glucan would an interesting tool in the control of obesity.