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Dietary supplementation with low fat, low sugar fruit yogurt enriched with vitamin B facilitates body weight management and glycemic control in type 2 diabetic patients

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**Statement of the Problem:** Intake of yogurt is associated with lower incidence of diabetes mellitus while beneficial effects of vitamin D and Ca fortified yogurt on metabolic regulation of Type 2 Diabetic (T2D) patients have been reported. Low fat, nonsugar sweetened yogurt facilitates energy balance and body weight management. In addition, the flexibility of yogurt's structure enables it to accommodate supplementation with micronutrients which are potentially required by diabetic patients. However, clinical studies are very restricted and the effects of fortification with other vitamins beyond vitamin D on glycemic control have not been examined. Group B vitamins hold key role in macronutrients' metabolism while low levels have been associated with insulin resistance. The study aims to investigate the possible beneficial effects of a dietary intervention with low fat, low sugar yogurt fortified with group B vitamins on metabolic control of T2D patients.

**Methodology**: Ten overweight patients with T2D were enrolled in the study and were guided to consume daily, two servings (2x200 g) of fruit yogurt (0% fat, 6% sugars) enriched with group B vitamins for 12 weeks. Measurement of anthropometric characteristics, biochemical parameters, glycosylated hemoglobin (HbA1C), vitamin B and homocysteine as well as Oral Glucose Tolerance Test (OGTT) were performed at the beginning and the end of the dietary intervention.

**Findings**: Intake of vitamins B fortified yogurt resulted in significant reduction of body weight, body mass index and body fat without affecting free fat mass. A marginally significant reduction of HbA1c was also observed. Blood concentrations of vitamins B were increased while glycemic response of patients in OGTT was ameliorated after the dietary intervention.

**Conclusions & Significance**: Regular consumption of low fat, low sugar yogurt enriched with group B vitamins facilitates body weight management and improves glycemic control in patients with T2D.

## **Recent Publications:**

- 1. Yanni A E, Stamataki N S, Konstantopoulos P, Stoupaki M, Abeliatis A, Nikolakea I, Perrea D, Karathanos V T and Tentolouris N (2018) Controlling type-2 diabetes by inclusion of Cr-enriched yeast bread in the daily dietary pattern: a randomized clinical trial. European Journal of Nutrition 57(1):259-267.
- Agathos E, Tentolouris A, Eleftheriadou I, Katsaouni P, Nemtzas I, Petrou A, Papanikolaou C and Tentolouris N (2018) Effect of α-lipoic acid on symptoms and quality of life in patients with painful diabetic neuropathy. Journal of International Medical Research 46(5):1779-1790.
- 3. Yanni A E, Stamataki N, Stoupaki M, Konstantopoulos P, Pateras I, Tentolouris N, Perrea D and Karathanos V T (2017) Cr-enriched yeast: beyond fibers for the management of postprandial glycemic response to bread. European Journal of Nutrition 56(4):1445-1453.
- 4. Stamataki N S, Nikolidaki E K, Yanni A E, Stoupaki M, Konstantopoulos P, Tsigkas A P, Perrea D, Tentolouris N and Karathanos V T (2016) Evaluation of a high nutritional quality snack based on oat flakes and inulin: effects on postprandial glucose, insulin and ghrelin responses of healthy subjects. Food & Function 7(7):3295-3303.
- Argiana V, Kanellos P T, Makrilakis K, Eleftheriadou I, Tsitsinakis G, Kokkinos A, Perrea D and Tentolouris N (2015) The effect of consumption of low-glycemic-index and low-glycemic-load desserts on anthropometric parameters and inflammatory markers in patients with type 2 diabetes mellitus. European Journal of Nutrition 54(7):1173-1180.

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## **Biography**

Amalia E Yanni has her expertise in health promoting effects of foods, nutrition and metabolism and research interest in the design of functional foods which can advance the quality life of patients with metabolic diseases. For years, she is organizing, supervising and participating in clinical studies of humans and studying animal models which support the synergy and complementarity of food and nutrition with health and wellbeing of patients and apparently healthy individuals. Her research studies include dietary interventions which investigate the effects of nutrients, bioactive compounds and functional foods on atherosclerosis, hypercholesterolemia and diabetes. She along with members of her research group have recently designed and studied functional cereal products with low glycemic index appropriate for diabetic patients and general population. She has years of experience in research, evaluation, teaching and administration in university and research centers.

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