Oral Glucose Tolerance Test (OGTT) as a useful tool for early diagnosis of Type 2 Diabetes mellitus and prediction of metabolic risks in children and adolescents.

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INTRODUCTION/OBJECTIVES
Type 2 Diabetes Mellitus (T2DM) and obesity represent two major health hazards in children and adolescents, with rising prevalence1, 2. Several markers have been developed in order to diagnose T2DM and detect potential metabolic abnormalities. The objective of the study was to examine glucose tolerance in Greek children and adolescents and the differences in the glucose, insulin and c-peptide response curves between male and female children and adolescents during an OGTT. Also, to examine the association between the OGTT measurements and parameters, such as the gender, obesity, prediabetes, a family history of T2DM or hyperlipidaemia, and pubertal staging.

METHODS
A 3-hour OGTT was conducted in 89 obese or overweight children and adolescents and glucose, insulin and c-peptide concentrations were measured at seven time points.

RESULTS
No significant differences were observed during the OGTT in mean glucose values between boys and girls. However, insulin and c-peptide concentrations were higher in the girls from T=60 min to T=180 min. HOMA-IR was also higher in the girls, whereas IG1c, a marker of beta-cell function, was lower. In patients with prediabetes, glucose concentrations were higher from T=60min to T=180min of the OGTT.

CONCLUSIONS
Our results show that overweight or obese girls may be at higher risk for future insulin resistance or beta-cell dysfunction. Also, not only the baseline and 2-hour measurements, but also the T=60, 90 and 180 min measurements during the OGTT may be useful for diagnosing T2DM and predicting future metabolic risks in children and adolescents who are overweight or obese.

REFERENCES