Objective: In order to simplify a conventional 100-gram oral glucose tolerance test (OGTT), a modified technique was proposed. The aim of this study was to determine the performance of such method for a diagnosis of gestational diabetes mellitus (GDM). STUDY DESIGN: Obstetric records of 909 pregnant women who underwent a 100-gram OGTT were reviewed. A modified 100-gram OGTT referred to a summation of 1-hour and 2-hour plasma glucose levels after ingestion of 100-gram glucose. The sensitivity and specificity of this summed glucose value at various cutoff levels were obtained. A receiver-operating characteristic (ROC) curve was then constructed to determine the optimal value to make a diagnosis of GDM. Results: Based on a 100-gram OGTT using the National Diabetes Data Group criteria, GDM was detected in 155 (17.1%) women. By a modified 100-gram OGTT, the best cutoff point of the two glucose values in summation--for GDM diagnosis was $\geq 341$ mg/dL (18.9 mmol/L). At this value, the sensitivity, specificity, and area under the ROC curve were 93.5% (95% confidence interval [CI]: 88.5, 96.9), 95.2% (95% CI: 93.4, 96.6), and 0.944 (95% CI: 0.920, 0.968) respectively. Conclusion: The modified 100-gram OGTT revealed a satisfactory diagnostic performance. This may serve as an alternative means for GDM diagnosis, with advantages over a conventional OGTT in terms of: less time consuming, lower cost, and fewer number of venipuncture.