and secretion in 116 Latino women with previous GDM compared with 25 control women. However, recent ethnic admixture is marked in such populations, so these results may also have been affected by ethnic heterogeneity.

There is evidence of marked variation in metabolic profile between different ethnic groups. Compared to European subjects, for example, African-Caribbean, South Asian and Hispanic populations are generally more insulin resistant and have higher prevalences of GDM and accelerated progression from GDM to type 2 diabetes. In our own dataset, indexes of the metabolic syndrome were more common among South Asian and African-Caribbean women following gestational diabetes compared with European women. Given these ethnic differences in both the frequency of GDM and in relevant intermediate traits, it is clear that failure to match study groups for ethnic composition could significantly confound results.

Our study extends previous research in this area, since we restricted recruitment of patients and controls to women of exclusively European, South Asian and Afro-Caribbean origin for three generations to minimise the adverse consequences of ethnic heterogeneity. The predominant metabolic feature in our study among women with a history of GDM is β-cell dysfunction with variable insulin resistance. Given the differences in the metabolic traits observed following GDM between ethnic groups, it cannot be excluded that slightly different mechanisms may be involved in the development of the metabolic syndrome and diabetes in the various ethnic groups. A limitation of our study is the smaller number of subjects investigated among the South Asian and Afro-Caribbean compared to the European group, and therefore type 2 error cannot be excluded when considering differences between GDM and control women of these non-European ethnic groups.

Our study has the advantage of using a specific and sensitive ELISA, which measures intact insulin only and does not cross-react with proinsulin or split proinsulin products, whereas the radioimmunoassays used in many previous studies measure all immunoreactive insulin molecules. Given that plasma concentrations of proinsulin and split proinsulin products are raised in type 2 diabetes and in prediabetic states, measurement of specific insulin has clear advantages.

In conclusion, women with a history of GDM of three different ethnic group, even when they have normal fasting glucose, display a range of metabolic