ABSTRACT

A prospective study examined aspects of maternal nutrition in pregnancy at the University Hospital of the West Indies, between June 1979 - April 1981.

The 136 Jamaicans recruited comprised lower (69%) and middle class (31%) women who were 16 - 45 years old, of mixed parity (0 - 9); most were primigravidae (56%).

The women were questioned about their dietary habits, knowledge of the folklore of pregnancy and to assess their social status. Dietary intakes were assessed by single 24 hour recalls.

The women were aware of a wide range of unusual cravings, in which 42% personally indulged. As many women ate ice as other forms of pica (14%). Pica, possibly by causing nutrient imbalances, depressed weight gain ($p<0.05$) but not birth weight. There was considerable awareness of the traditional lore of pregnancy. Both aspects of food habits were associated with lower social class.

Few women were at high risk (intake $<^{2}/_{3}$ Caribbean Recommended Dietary Allowances) of dietary deficiences; dietary iron (24%), energy (19%) riboflavin (15%) or protein (13%). That there were few significant concomitants of nutrient deficiency suggests the risks were overestimated: Dietary energy bore a positive association with weight gain ($p < 0.05$) but paradoxical inverse association with outcome ($p < 0.05$).

The women were 159.5(5.8) cm tall, 108 (16)% of standard weight-for-height and 22.7 (3.4) kg m^{-2}, at 15 weeks gestation. They gained 10.1±3.5 kg by 38 weeks. Their infants who weighed 3.08 (0.54) kg at 39.2 (2.1) weeks gestation, included 11(10%) low

birth weight (<2.5 kg), 18% small-and 8% large-for-gestational age babies (cf Aberdeen sex-parity-gestation-specific standards).

Mid-upper arm and arm-muscle circumferences increased little (+1 cm), consistent with increases in lean body mass (+ 245 g kg^{-1} at 30 weeks). Upper arm skinfolds changed little during pregnancy, whereas both subscapular (+ 1.9 mm) suprailiac (+ 2.6 mm) and thus total skinfolds (+ 5.2 mm) peaked at 30 weeks, i.e. + 428g fat kg^{-1} weight gained. Similar patterns of change in fatness occur among well nourished British women. The preferential changes at trunk sites among similarly well-nourished Jamaican middle class women are consistent with ethnic differences in fat patterning.

A model comprising gestation, past nutriture (height), parity, social status, initial acute nutriture (weight.$height^{-2}$), nutritional status during pregnancy (weight gain), obstetric performance and infant's sex "explained" 49% of the variance in birth weight (multiple r = 0.703). Neither weight. $height^{-2}$ nor obstetric performance contributed to the model. This suggests that the ability of the nutritionally 'at risk' to compensate during pregnancy plays a larger role than immediately antecedent nutriture. Once weight gain was controlled, neither dietary measures (intake or attitudes), nor the composition of the weight gain (change in muscle circumference and total skinfolds), mattered.

These results suggest that ante-natal health education could be more supportive and reassuring. Greater attention should be paid to identifying the 'at risk' among the poor, efficiently. A small mid upper arm circumference (<90% of WHO standard) shows promise for screening (81% sensitive, 58% specific).