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NEWS AND NOTES

SUPPLEMENT

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CORRESPONDENCE

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- *No letter should be more than 400 words.*
- *For letters on scientific subjects we normally reserve our correspondence columns for those relating to issues discussed recently (within six weeks) in the BMJ.*
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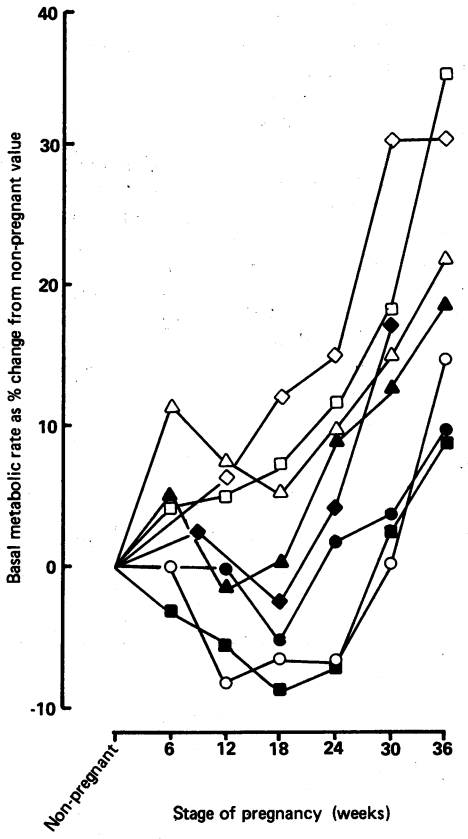
- *Because we receive many more letters than we can publish we may shorten those we do print, particularly when we receive several on the same subject.*

Reduction in postprandial energy expenditure during pregnancy

SIR,—Dr P J Illingworth and colleagues (20 June, p 1573) provide interesting evidence of a reduction in postprandial energy expenditure during the second trimester of pregnancy. This supports our own observations that energy sparing adaptations may occur in some pregnant women.[1,2] The interpretation of their results, however, is open to question.

Firstly, it may be calculated from the data provided that the rise in energy expenditure expressed relative to the energy content of the test meal was only 3·6% in the non-pregnant controls and 3·5%, 2·6%, and 3·0% in the three trimesters of pregnancy. The mean difference between the pregnancy and control values, therefore, amounted to only 0·6% of the total energy ingested. The shape of the postprandial energy curves suggests that the measurements covered only about two thirds of the total thermogenesis induced by diet, but even allowing for this the potential saving would still be less than 1% of the total energy expenditure.

We have recently completed a detailed study that also shows that savings in thermogenesis induced by diet are probably minimal. Measurements were made by continuous 24 hour whole body calorimetry before pregnancy and every six weeks throughout pregnancy.[3] Subtraction of basal metabolic rate and the energy cost of gross physical activity from the total 24 hour expenditure leaves a residual representing the sum of minor physical movements and thermogenesis induced by diet. The mean (SD) residual was 14 (2)% of total expenditure, of which up to half may be thermogenesis induced by diet. The average within subject coefficient of variation, calculated over the whole pregnancy and including the baseline value, was only 6%, which is equivalent to 0·8% of total daily expenditure. This constancy indicates either that changes in thermogenesis induced by diet were coincidentally offset by equal and opposite changes in minor physical activity, which is improbable, or that any changes in such thermogenesis were biologically insignificant over 24 hours.



Serial measurements of basal metabolic rate in eight pregnant women.

Secondly, Dr Illingworth and colleagues state that the changes in basal metabolic rate were consistent with those in other studies of well nourished women. The difference between the value in their non-pregnant controls, however, and the value at 34-36 weeks of pregnancy was only 7·9%, which compares with an average of about 20% obtained by review of 24 other studies.[2] This difference is greater than the observed change in thermogenesis induced by diet and therefore requires more detailed consideration.

In our experience, there are important differences between subjects in the metabolic response to pregnancy. These are illustrated in the figure, which shows the changes in basal metabolic rate observed in our calorimetry study. Some subjects showed a pronounced and consistent early depression of metabolism, which would spare energy in the manner hypothesised for undernourished women. Other subjects showed an immediate and progressive rise in metabolism. These differences were observed in a homogeneous group of well nourished women in Cambridge. The cross sectional analysis of serially collected data used by Dr Illingworth and coworkers (and others) conceals such differences and makes the unjustified assumption that there is a typical response to pregnancy that will be similar in all women.

Even the changes in basal metabolic rate, which are more important than changes in thermogenesis induced by diet, may themselves be small in