The difference in response of serum proteins to a high-carbohydrate diet in men and women. By BETTY L. COLES, *Department of Physiology, Guy's Hospital Medical School, London, SE1*

A decrease in serum albumin concentration has been noted in healthy men on a variety of high-carbohydrate diets (Coles & Macdonald, 1966; Coles, 1969.) Similar investigations have now been made in women. A comparison of the serum albumin response to two diets was tested in six young men and six young women. Both diets contained 9% protein by weight. The sucrose diet provided 7 g/kg body-weight of sucrose daily; the isocaloric cream diet provided 3·5 g/kg of sucrose; the additional calories were supplied as double cream. On both diets the serum albumin concentration of the men fell significantly over an 18-day experimental period. The serum albumin concentration of the women showed no significant change on the sucrose diet. On the cream diet there was a significant fall in this fraction in the women from days 0 to 7, but by day 18 the levels had risen to control values.

This work was supported by a grant from the Medical Research Council.

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The incorporation of intravenously injected ^{14}C-labelled glucose and fructose into the serum glycerides of male and female baboons. By M. H. JOURDAN, *Department of Physiology, Guy's Hospital Medical School, London, SE1*

In a previous communication to the Society (Jourdan, 1969) it was reported that fructose, after rapid intravenous injection, disappeared from the serum of male baboons more rapidly than from the serum of female baboons. No such difference between the sexes was found after rapid intravenous injection of glucose.

In an attempt to account for these findings, the incorporation of ^{14}C-labelled fructose and glucose into the serum lipids has been studied.

After an overnight fast, six male and six female baboons were tranquillized and given 0·5 g of either ^{14}C-labelled glucose or fructose/kg body weight in 20% solution by rapid intravenous injection over a period of 3 min. Venous blood was taken before the injection and at intervals up to 5 h after the end of the injection.

The serum lipids were extracted and the ^{14}C activity was measured in the various lipid fractions following separation by thin-layer chromatography.

It was found that specific activity (counts/min per mg lipid fraction) of the glyceride fraction following fructose injection was greater over the 5 h period in the male than in the female baboons. After glucose injection the specific activity in the glycerides was significantly less than after fructose injection, and no difference between the sexes was detectable.

https://doi.org/10.1017/S0029665100100461 Published online by Cambridge University Press

Hence it would seem that one factor responsible for the more rapid rate of removal of fructose from the serum of male baboons as compared with female baboons is the greater incorporation of fructose into the serum glycerides of the male animals.

This work was supported by a grant from the Medical Research Council.

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Blood glucose following oral loads of glucose, maltose and starch during pregnancy. By T. LIND and F. E. HYTTEN, *MRC Reproduction and Growth Research Unit, Princess Mary Maternity Hospital, Newcastle upon Tyne, NE2 3BD*

The blood glucose response curve to an oral load of 50 g of glucose varied considerably between normal pregnant women (Lind, Cheyne, Billewicz & Fairweather, 1968). Repeated tests on the same women showed that the response was not affected by the stage of gestation or by body-weight for height, but was 'flatter' when the test was done after resting in hospital overnight than when done in the out-patient clinic.

Differences of absorption may be the cause of the varying response between individuals. To investigate this, and also differences of carbohydrate digestion, three tolerance tests using 50 g of glucose, maltose and potato starch respectively were made on twelve pregnant and twelve non-pregnant women. The potato starch was given in the form of mashed potato made up from 50 g of pure potato starch granules with water. The tests were made in random order and were completed within 10 days in each individual. None of the non-pregnant women were taking oral contraceptive tablets.

There were no significant differences between the fasting, peak, 2 h blood glucose levels obtained with any carbohydrate in either group of women. Pregnant, compared to non-pregnant, had a somewhat slower absorption and a delayed blood glucose peak in response to glucose and maltose. The response of blood glucose levels to potato starch was similar in each group, the pregnant women reaching a peak more rapidly than after an equivalent load of glucose or of maltose.

The passage of glucose from the stomach may be delayed in pregnancy, which could explain why pregnant women are so often nauseated after a glucose load.

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Relationship between the component fatty acids of plasma cholesteryl esters and phospholipids in the rat and pig. By W. M. F. LEAT, *ARC Institute of Animal Physiology, Babraham, Cambridge* and D. J. NAISMITH, *Department of Nutrition, Queen Elizabeth College, London, W8*

Rats rendered deficient in linoleic acid were fed a single dose of safflower-seed oil (≡350 mg linoleic acid/rat) and were then killed in groups of six at 12, 24, 48,