

SUBJECT MATTER IN BRIEF

British Journal of Nutrition, Vol. 58, No. 2, September 1987

CLINICAL AND HUMAN NUTRITION papers

STUDIES IN MAN

Raw soya-bean increases cholecystokinin release. Soya-bean flour contains heat-labile trypsin inhibitors and increases cholecystokinin release in rats but its effect in man is unknown. Normal subjects ate a mixed meal with raw and cooked soya-bean flour on different days. Postprandial cholecystokinin release was about three times greater with the raw flour. 175-179

Liver stores of vitamin A in human fetuses. Vitamin A stores in the human fetal liver were found to increase with the progress of gestation and to vary with maternal serum retinol levels. The influence of maternal status was greater in late pregnancy than in the earlier stages, and greater in low- than in high-income groups. 181-189

Neonatal vitamin E status. Vitamin E status of the newborn was found to be influenced by gestational age, growth and maternal vitamin E status. Low serum concentrations of vitamin E in the mother appeared to increase the risk of prematurity and intra-uterine growth retardation, especially in poorly nourished women. 191-198

Hydrolysis of sugar alcohol analogues. Sugar alcohols may have some advantages as relatively unmetabolizable sweetening agents. Hydrolysis of sugar alcohol analogues of maltose, lactose and isomaltulose and a commercial mixture, Palatinit®, by human small intestinal biopsies was examined. Only maltitol was degraded appreciably and that to only a small extent. 199-206

5-Oxoprolinuria of glycine insufficiency. Glycine is a conditionally essential amino acid in a number of physiological or pathological states. When glycine privation was induced in normal adults by the ingestion of sodium benzoate, there was a significant increase in urinary excretion of 5-oxoproline. Therefore, 5-oxoprolinuria may provide a simple, non-invasive index of glycine status. 207-214

OTHER STUDIES RELEVANT TO HUMAN NUTRITION

Malnutrition and fetal skin. The skins of prenatal protein-malnourished rat dams and their offspring were analysed. Under this stress, the skins of developing fetuses were generally affected more than those of their dams. The possible importance of proper nutrition during pregnancy is suggested for the healthy development of fetal skins. 215-220

Dietary fat and N-nitrosation. Nitrosamine formation from dietary nitrate could be harmful. Giving fat to rats receiving NaNO_3 in drinking water reduced urinary excretion of nitrosamines. The effect was greater for butterfat than for coconut, olive, maize or safflower oils and was largely due to inhibition of microbial nitrate reductase activity in stomach contents. 221–231

Fermentations with human faecal micro-organisms. Colonic fermentation may influence lipid, carbohydrate and protein metabolism. The importance of diet, particularly dietary fibre, on colonic fermentation can be studied using in vitro fermentation systems. This study concludes that mixed microbial fractions prepared from human faeces can be used in standardized assays to evaluate fermentative effects of foods. 233–243

Growth of underfed artificially reared rats. The influence of early life undernutrition on subsequent body and organ growth was investigated in mother-reared and artificially reared rats. The lasting negative effects of undernutrition were similar in both cases, thus verifying that the artificially reared rat is a suitable subject for undernutrition studies. 245–255

Dietary protein and gallstone formation. A diet high in fat and cholesterol caused cholelithiasis with pigment gallstones in vervet monkeys. Giving dietary protein as soya-bean protein rather than casein did not protect against the formation of gallstones or affect bile constituents or the composition of plasma lipoprotein lipids. 257–263

GENERAL NUTRITION papers

Cu, Mo, S interactions in rumen contents. In the rumen, dietary molybdenum and sulphur play important roles in decreasing the availability of copper to sheep. When molybdate or tetrathiomolybdate was added to rumen contents there was an increased association of Cu and Mo with proteins in particulate matter, and a decreased proportion of Cu in solution. 265–276

Protein quality and heat production of pigs. The daily nitrogen retention of growing pigs was greatly increased and their fat deposition much reduced by addition of lysine to a lysine-deficient diet, but heat production was not significantly altered. 277–285

Protein turnover in growing pigs. Rate of protein accretion in growing pigs was increased by increasing either the quality or the quantity of dietary protein. Giving more protein significantly increased total amino acid flux and amino acid breakdown whereas improving protein quality tended to reduce protein breakdown without significantly changing the total amino acid flux. 287–300

Dietary energy and protein metabolism in the pig. Diet supplementation with carbohydrate or fat transiently reduced leucine concentration and entry rate. Carbohydrate also rapidly reduced urea synthesis but the effect of fat commenced only 24 h after the change in diet. These changes correlated with an increased insulin:cortisol ratio due to a reduction in plasma cortisol. 301–311

Bacterial protein breakdown in the rumen. The extensive turnover of bacterial protein in the rumen is thought to decrease the net protein yield from fermentation. Of the various factors that have been suggested to contribute to this turnover, only predation on bacteria by protozoa was found to cause a significant degree of bacterial protein breakdown.

313–323

Control of food intake in the chicken. Infusion of lysine depressed intake of food in cockerels fasted overnight. Equivalent amounts of leucine had a similar, although delayed, effect but ammonium chloride did not affect intake. This provides evidence that absorbed amino acids, as well as glucose, participate in the control of food intake.

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