

## SUBJECT MATTER IN BRIEF

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### Papers relevant to CLINICAL AND HUMAN NUTRITION

**Energy intake and expenditure of Nigerian women.** The energy intake and expenditure of Nigerian female students was investigated for seven consecutive days during sedentary and physical activities. They consumed more energy than they expended. The energy values for expenditure indicated that the subjects participating in the study were not physically very active. 309-318

**Selenium availability from wheat.** The nutritional availability of selenium to rats from two Finnish spring wheats, one fertilized and one sprayed with sodium selenate, was compared with that from an American wheat naturally high in Se. Using several different response criteria all the wheats were found to be relatively highly available sources of Se. 319-329

**Fruit juices, fruits and iron absorption.** Effects of various fruit juices and fruits on Fe absorption from a rice meal were evaluated. Their ascorbic acid (and to a lesser extent citric acid) contents were closely correlated with Fe absorption. Fruits with the greatest potential to improve Fe nutrition included pawpaw, guava and the citrus group. 331-343

**Soya-bean protein and iron absorption.** Fe absorption was significantly less from an infant formula containing isolated soya-bean protein than it was from a milk formula. A similar inhibition was noted with soya-bean flour. The inhibition was not overcome by heating the protein or by the addition of ascorbic acid or citric acid. 345-353

### Papers on GENERAL NUTRITION

**Methane excretion in the growing pig.** Methane excretion and hence flatus production in pigs was not only reduced by changing the amount and composition of the dietary carbohydrates, but also by inclusion of a polyunsaturated oil in the diet. The relevance of these findings in human nutrition is discussed. 355-361

**Energy balance in exercise-detrained rats.** Energy balance measurements combined with biochemical assessment of brown adipose tissue were made in male rats undergoing exercise detraining to determine how they increase gross energetic efficiency compared with sedentary controls. Increased metabolizable energy intake (expressed relative to body-weight) accounted for the enhanced energetic efficiency of detrained rats. 363-370

- Bacterial metabolites in the rabbit gut.** Lactate entering the portal circulation originates from the stomach, while the volatile fatty acids originate from the hind-gut. Net absorption from the digestive tract and hepatic utilization of these fermentation acids varied with the faecal excretory cycle. 371–381
- In vivo utilization of fatty acids.** This study shows that various fatty acids are oxidized at different rates in vivo, with high rates for oleic,  $\alpha$ -linolenic, lauric and myristic acids and much lower rates for the essential fatty acids linoleic,  $\gamma$ -linolenic, dihomo- $\gamma$ -linolenic and arachidonic. The products are oxidized more slowly than the parent fatty acids. 383–393
- Rumen protozoa and feed utilization.** Ciliate protozoa usually constitute a large proportion of microbial biomass in the rumen. Their contribution to digestion and metabolism was studied in cattle given paspalum hay. Protozoa improved the digestion of organic matter but had no significant effect on the digestibility and retention of nitrogen. 395–406
- Microbial colonization of straw in the rumen.** The rate of fibre degradation in the rumen was not related to the size of the total adherent microbial population, estimated by glutamate dehydrogenase activity extracted from attached micro-organisms. A contrastingly high correlation between bound carboxymethylcellulase activity and dry matter degradation demonstrated the requirement for a specific, cellulolytic, adherent population. 407–415
- $\beta_2$  Adrenergic compounds and body composition.** The  $\beta_2$  adrenergic agonist, clenbuterol, administered to livestock is reported to produce a repartitioning of nutrients. Its effect on protein and energy metabolism of veal calves was examined. Clenbuterol produced increased muscle accretion apparently due mainly to reduced protein degradation. Fat deposition was also reduced and energy expenditure increased. 417–428
- Fasting, methionine deficiency and HMB metabolism.** DL-Methionine or DL-2-hydroxy-4-methylthiobutanoic acid (DL-HMB) are commonly used to supplement poultry feeds low in natural L-methionine. Results of metabolic studies in fed, fasted and methionine-deficient broiler chicks suggested that brain and probably liver have improved rates of conversion of D-methionine and DL-HMB to L-methionine during fasting and methionine deficiency. 429–437
- Fibre and porto-arterial urea differences.** High-fibre diets are often found to increase faecal nitrogen, and decrease urinary N outputs. Giving such a diet to growing pigs did not, however, lead to increased differences between portal and arterial plasma urea concentrations indicating that increased passage of urea to the gut did not occur. 439–446
- Sodium status in sheep.** Blackface sheep were given a diet containing Na at 10% recommended levels for two reproductive seasons. They maintained both pregnancies and lactated normally, rearing healthy lambs. Na was conserved in excreta and decreases in quantity of body fluids and decreases in Na concentrations in fluids and tissues were observed. 447–455

*Subject matter in brief*

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**Protein metabolism in cattle.** The relations between protein synthesis, energy expenditure and food intake were examined in fattening steers. There were strong correlations between all three variables in both fed and fasted animals. There was evidence that a smaller proportion of synthesized protein was retained than has been reported for physiologically younger animals.

457–465

**Metabolism of *N*<sup>7</sup>-methylhistidine by cockerels.** Some *N*<sup>7</sup>-methylhistidine released from muscle protein by degradation was incorporated into a dipeptide which contributed to the pool of non-protein-bound *N*<sup>7</sup>-methylhistidine. Excreted *N*<sup>7</sup>-methylhistidine was a progressively decreasing proportion of the tissue pool with increasing age and was, therefore, an unreliable index of muscle protein breakdown.

467–478

**Gastrointestinal <sup>65</sup>Zn absorption in sheep.** Measurements in sets of two and three sheep which were exchanging duodenal digesta via re-entrant cannulas showed no absorption of <sup>65</sup>Zn from the stomach. The secretion of Zn into the intestinal tract was 2·1-fold higher than that into the stomach.

479–488