

Editorial

It's a time of change for *Nutrition Research Reviews*. After 4 years as Editor-in-Chief, and more than 9 years as a member of the Editorial Board, it's time for me to step down. I'm very pleased to say that Dr David Bender, University College London, is taking over and I'm sure that he will find it as fulfilling and enjoyable as I have, but not without some frustrations! The positive and helpful attitudes of Editors, Nutrition Society officers and staff, and all at CABI Publishers ensures that the job is never boring. However, the main pleasure is in the reviews and their authors, always enthusiastic even if occasionally missing agreed deadlines!

Joining the Editorial Board in my place is Dr Neil Jessop, University of Edinburgh, whose interests are in many ways similar to mine, including digestion, metabolism and food intake of farm animals, particularly ruminants. It is the Society's intention that *NRR* should continue to publish a significant proportion of reviews concerning the nutrition of animals of economic importance and Neil's responsibility will be mainly in this area.

Dr Parveen Yaqoob is also stepping down from the Editorial Board, after 4 years of active service. We thank her sincerely for her contribution to the success of *NRR* and wish her well as an editor of the *British Journal of Nutrition*. We are pleased to welcome in her place Dr Sue Roberts, Tufts University, Boston, USA, whose main interest is in energy balance. She has published prolifically more broadly (encompassing interest in the elderly and young children) and has written a book about feeding young children.

The contents of this issue concern biochemistry and physiology, farm animals, and human nutrition. In the first category is the paper by Bell & Ehrhardt (2002) dealing with nutrient transport across the placental and its implications for fetal growth. The authors relate the maternal-fetal transport kinetics of glucose, amino acids and fatty acids *in vivo* to the expression and distribution of specific transporters among placental cell types and subcellular membrane fractions. Placental capacity for transport of glucose and amino acids increases with fetal demand as gestation advances and, in late pregnancy, transport capacity is closely related to placental size and can be modified by maternal nutrition. The authors discuss the consequences of normal and abnormal development of placental transport functions for fetal growth, especially during late gestation and for fetal programming of postnatal disorders.

Furuhata *et al.* (2002) review the studies, carried out mainly by themselves, into pulsatile secretion of growth hormone (GH) in human GH transgenic rats and its effects on fat deposition. These rats have elevated blood glucose, free fatty acid, insulin and leptin levels as well as hyperphagia, suggesting that they carry insulin- and leptin-resistant characteristics. When subjected to pair-feeding body weight gain and fat deposition were normal, while continuous infusion of GH resulted in a significant decrease in the fat mass while altering neither food intake nor body weight gain. It seems as if hyperphagia and obesity are closely related to GH levels and GH secretory pattern. This has significant implications for the understanding of obesity in humans.

From time to time we invite a contribution from an eminent nutritionist and it is a pleasure on this occasion to publish a review by Dr Donald McCormick, McCormick (2002), on his lifetime's work on micronutrient cofactors. With his co-workers, he has unraveled several features of vitamin metabolism, especially B₆ and riboflavin. Applications of the research are outlined including enhanced drug delivery, pathogen inactivation and contributions to human dietary requirements. It would be easy to be overawed by the quantity and quality of

McCormick's contributions to his chosen field. He lists about 175 publications from his laboratory over a period of more than 40 years research. Overawed or not, young scientists should take inspiration from such a career.

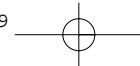
The review by Gil & Rueda (2002) on the development of the immune system and interactions with early diet could just as easily be put with papers on human nutrition as with those on biochemistry and physiology. The mechanisms that regulate intestinal immune function are reviewed, with particular emphasis on how the components of human milk influence the early development of intestinal immunity in infants. The mode of action of nucleotides and gangliosides in milk are considered in detail. The effects of probiotics, produced and consumed in large quantities in many countries, on the immune system have been well studied in children and are described, particularly with regard to the prevention of allergic diseases.

There is both scientific and political debate about potential dangers to consumers of eating meat from animals treated with hormones and their analogues. Galbraith (2002) covers substances with oestrogenic, androgenic, or progestogenic activity, used as growth promoters in some parts of the world, and concentrates on comparing the low quantities of hormonal compounds consumed in meat products with their endogenous production, particularly in pre-pubertal children. Oestradiol-17 β , currently 'permanently' banned in the EU, may induce free-radical damage of DNA, as well as stimulating cell proliferation; the question is not "is oestradiol carcinogenic?" but "are any residues left in treated animals likely to be carcinogenic?". The author outlines the scientific bases of the acceptance of the use of these growth promoters in some countries, and the non-acceptance in others.

Pinotti *et al.* (2002) examine the importance of choline in the diet of the dairy cow. In addition to its specific functions, choline can also act as a methyl donor in place of methionine or betaine. As choline is extensively degraded in the rumen it might be thought that it is of no importance. However, in lactating ruminants the output of methylated compounds in milk is high and precursors from the tetrahydrofolate pathway are limiting, leading to the suggestion that choline may be a limiting nutrient for milk production in high yielding dairy cows.

Enteric diseases of pigs are of great importance, not least because the current method of controlling them, i.e. routine inclusion of antibiotics and/or minerals in pig diets, is progressively being banned in many parts of the world. The review of nutritional influences by Pluske *et al.* (2002) is justifiably long and covers the major types of enteric disease in pigs and the effects of diet on the incidence and severity of infection. The authors make it clear that the mode of action of many dietary effects is unknown, that the effects are very variable, and that no simple and universal way has been identified to reduce susceptibility to pathogens in the gastrointestinal tract. It is, therefore, difficult to make recommendations for dietary control of enteric disease. Better understanding of modes of action, together with consideration of interactions with environmental factors in commercial pig production are essential before effective and reliable nutritional prevention and treatment of enteric disease can be developed. This review is linked to several others previously published in *NRR* including ones on interactions between bacteria and the small intestinal mucosa (Kelly *et al.* 1994); organic acids in pig diets (Partanen & Mroz, 1999); antibiotic use in animal feed (Barton, 2000); and modulation of human gut microbiology by pro- and prebiotics (Steer *et al.* 2000).

The first of two reviews specifically on human nutrition concerns food choice in relation to fruit and vegetable intake Pollard *et al.* (2002) (one of the authors is Dr Janet Cade, one of our Editorial Board). Despite public health messages, the majority of the population eat less fruit and vegetables than recommended. Cost and the carrying weight for those without a car are likely to be significant factors, as is the time needed to prepare them for eating. The authors



suggest that free samples should be offered in supermarkets and that the government should sponsor an advertising campaign - advertising of fresh fruit and vegetables is currently almost zero!

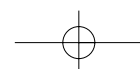
The final article Lovegrove (2002) is on obesity, body fat distribution and breast cancer, a topic of enormous public health significance. It is clear that the incidence of pre-menopausal breast cancer decreases with increasing weight and BMI but there is also a recently-emerging suggestion of a positive relationship between central adiposity and pre-menopausal breast cancer risk. It may be that obesity increases circulating hormones such as oestrogens, androgens, insulin, insulin-like growth factor-1 which have been linked to increased breast cancer risk. Avoidance of obesity is an important method for reducing the risk, especially post-menopausally.

I wish *NRR* continued success in the future!

J. M. Forbes
Editor-in-Chief
Nutrition Research Reviews

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