

Nutrition programming statements in materials on infant feeding aimed at parents: comparison among five European countries. By J. VON ROSEN-VON HOEWEL¹, K. LAITINEN², M.A. SCHMID³, T. DECSI⁴, E. MARTIN-BAUTISTA⁵, B. KOLETZKO¹, V. JAKOBIK⁴, C. CAMPOY⁵, H. GAGE³, J. MORGAN³ and M.M. RAATS³, ¹*Dr von Hauner Children's Hospital, Ludwig-Maximilians-University, Munich, Germany*, ²*Department of Biochemistry and Food Chemistry, University of Turku, Turku, Finland*, ³*Food, Consumer Behaviour and Health Research Centre, University of Surrey, Guildford GU2 7XH, UK*, ⁴*Department of Paediatrics, University of Pécs, Pécs, Hungary* and ⁵*Department of Paediatrics, University of Granada, Granada, Spain*

Although the association between early nutrition and later health outcomes known as metabolic programming is well acknowledged amongst researchers, the extent to which this concept is being communicated to parents is not known. The frequency and content of programming statements found in written materials aimed at parents and produced by national governmental bodies, professional and consumer associations, special interest groups and industry were reviewed in five European countries.

Stand-alone leaflets, pamphlets and booklets (termed leaflets) targeted towards parents and published from 2000 to 2005 and all issues from 2005 of the most popular monthly parenting magazine providing information on the feeding of healthy infants aged 0–12 months were sourced in each country. Materials targeting older children, mothers or health professionals and focusing on legal and practical aspects or specific diseases were excluded. Altogether 130 documents (England thirty-six, Finland eight, Germany fourteen, Hungary thirty-eight, Spain thirty-four) and 161 articles and notes from sixty magazine issues were screened for nutrition programming statements on nutrients, food items and feeding behaviour in relation to short-term (<5 years), medium-term (5–15 years) and long-term (>15 years) health outcomes of the infant. Statements on non-nutritive substances, non-feeding-related behaviour, vitamin and mineral supplementation and nutrient deficiencies were excluded.

In total 638 programming statements were identified. It was found that 76.0% (*n* 100) of the leaflets and 41.4% (*n* 66) of the magazine articles and notes contained programming statements. The percentage of statements in all materials was highest in Spain (88.6), followed by Hungary (67.3), Germany (50.8), Finland (45.8) and England (42.2) (*P*<0.001). The most frequently documented health outcomes are listed in the Table. The dominating category for England, Germany and Hungary was allergy, whereas it was risk of infections for Spain and growth and development for Finland. The majority of statements (68.2%, *n* 435) did not refer to the duration of the programming effects; of the remaining statements 18.2% (*n* 122) referred to short-term, 5.1% (*n* 33) to medium-term and 7.5% (*n* 48) to long-term programming effects. The most frequently mentioned health outcomes for short-term programming were risk of infections (30.3%), allergy (16.4%) and risk of diseases in general (14.8%), and for long-term programming those mentioned were obesity (22.9%), the risk of CVD (14.6%) and health in general (14.6%).

Most frequently mentioned health-outcome categories	England		Finland		Germany		Hungary		Spain		All countries	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Allergy	46	25.7	4	10.5	44	22.2	28	23.5	10	9.6	132	20.7
Risk of infection	41	22.9	3	7.9	13	6.6	20	16.8	22	21.2	99	15.5
Growth and development	10	5.6	7	18.4	34	17.2	9	7.6	13	12.5	73	11.4
Risk of disease in general	19	10.6	3	7.9	10	5.1	9	7.6	10	9.6	51	8.0
Obesity	10	5.6	4	10.5	9	4.5	9	7.6	11	10.6	43	6.7
Mental development	9	5.0	1	2.6	12	6.1	9	7.6	8	7.7	39	6.1
Other health outcomes	44	24.6	16	42.1	76	38.3	35	29.4	30	28.8	201	31.0

In summary, the concept of programming effects of early nutrition on later health has been integrated to a considerable extent into infant nutrition information aimed at parents in these five European countries. However, substantial variation in the frequency of statements in materials and the emphasis of the type of health outcome was found amongst the countries. Furthermore, neither the long-term perspective of nutrition programming nor the intrinsic life-course definition of programming was evidently represented or reflected in the statements.

Promoting recommended infant feeding practices in a low-income-sample randomised control trial of a peer-support intervention. By R.G. WATT¹, E. DOWLER², R. HARDY¹, Y. KELLY¹, P. McGLONE³, B. MOLLOY⁴, K.I. TULL¹ and M. WIGGINS⁵, ¹*Department of Epidemiology and Public Health, University College London, 1–19 Torrington Place, London WC1E 6BT, UK*, ²*Department of Sociology, University of Warwick, Coventry CV4 7AL, UK*, ³*Primary Care Research Network, Peninsula Medical School, Knowledge Spa, Royal Cornwall Hospital, Truliske, Truro TR1 3HD, UK*, ⁴*Community Mothers Programme, 1st floor, Park House, North Circular Road, Dublin 7, Eire*, and ⁵*Social Science Research Unit, Institute of Education, 18 Woburn Square, London WC1H 0NR, UK*

The objective of this project was to assess the effectiveness of a peer-support intervention on infant feeding practices in Camden and Islington, London, UK over a 15-month period from December 2002 to February 2004.

A randomised controlled trial compared nutritional and other outcomes for women offered volunteer support with those for control women who only received standard professional care. The sample was recruited using advertisements in free local papers and council run hostels, but mainly at baby clinics. The 312 women were allocated at random to the intervention (157) or control group (155). Data was collected at baseline when the infants were 10 weeks old, post intervention when the children were 12 months old, and at 6 months follow up when the children were 18 months old. Nutrient intakes, fruit and vegetable consumption, feeding practices, growth and use of health services were also assessed for each child. Mothers were interviewed at each stage of the study, and information was gathered on mother's health, fruit and vegetable consumption, nutritional knowledge and confidence. In addition, a detailed process evaluation was conducted. A group of local volunteers were recruited and trained to provide non-judgemental support and practical assistance on infant feeding, in particular weaning practices. Home-based support was offered over a 9-month period until the infants were 12 months old.

Nutrient data from 24-hour multiple pass recalls at each stage was entered and analysed using the CompEatTM nutrient database. The macro- and micro-nutrient intakes at each stage were similar in each group (data not shown). Both the macro- and micro-nutrient intakes were in line with the recommended (RNI) and lower recommended nutrient intake (LRNI) values. Consumption of fresh fruit and vegetables was gathered through the use of a food frequency questionnaire at the 12 and 18 month visits. The effect of the intervention on the test group at each project stage is shown below:

Significant differences at 12-month stage (<i>P</i> <0.05)	Significant differences at 18-month stage (<i>P</i> <0.05)
More carrots, boiled potatoes, apples and pears consumed	Consumed more boiled potatoes, chips and pears
Less likely to be given goat's milk or soya milk	Mothers more knowledgeable about when bottle feeding should be discouraged
More likely to be eating family foods and having three solid meals per day	Mothers were more confident in following health professionals' recommendations on how best to feed their child

Although both the women and the volunteers valued the intervention, there was no evidence of any benefit in macro- and micro-nutrient intakes at either the post intervention or follow-up stage. Nevertheless, the intervention did achieve benefits on infant feeding practices and improved nutritional knowledge and confidence. A detailed process evaluation demonstrated a range of positive impacts for both the mothers and volunteers involved in the intervention.

We would like to acknowledge the Food Standards Agency, as well as the mothers, children and volunteer peer supporters, for their help with this intervention.