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Dietary Patterns in Irish Children (5–12yrs) and Weight Status

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Childhood obesity increases the risk of morbidity and mortality in later life[1]. A wide range of individual nutrients and foods have been suggested as determinants of childhood obesity including sugar sweetened beverages, fat, fruit and vegetables and fibre amongst others[2]. A more informative method of distinguishing this association may be to examine the diet as a whole. The aim of this study was to identify dietary patterns in Irish children using cluster analysis and to examine whether there is an association with weight status.

Analysis was based on data collected from a nationally representative sample of Irish children between the ages of 5–12 years from The National Children's Food Survey (2003–2004) (www.iuna.net). In this survey dietary information was collected by use of a 7 day weighed food diary from a nationally representative sample of 594 children. Nutrient intakes were estimated using WISP based on McCance and Widdowson's The Composition of Foods 6th edition[3] and the Irish food composition data base[4]. Cluster analysis was performed on the percentage energy (kcal) from 32 food groups to derive dietary patterns. Two-step cluster analysis and scree plots were then used to determine the best fitted number of clusters and then the cluster analysis were repeated using the methods of k-mean using SPSS version 20.

Table 1. Dietary patterns derived by the mean percentage contribution of each food group to total energy intake (kilocalories): Irish children aged 5–12 years, NCFS (2003–2004)

Cluster 1 (n 229; 38·5%)		Cluster 2 (n 199; 33·5%)		Cluster 3 (n 166; 28%)	
Highest	Lowest	Highest	Lowest	Highest	Lowest
Chips	Fish	Breakfast cereals	Red meat dishes	Biscuits & cakes	White bread
Confectionery	Rice & pasta	Potatoes	Savoury snacks	Desserts	
High-calorie beverages		Whole milk		Fruit	
Low-fat milk				Savouries	
Red meat				Vegetables	
				Wholemeal bread	

Two-step cluster analysis identified three clusters while K-means cluster analysis characterised these clusters. Confectionary was the main contributor to percentage energy intake in cluster one, whilst whole milk and savouries accounted for the largest energy intakes in clusters' two and three respectively. No significant difference in age was noted across clusters. However, cluster members differed significantly in terms of gender, cluster two had a higher proportion of females compared to males (60% versus 40%) whereas cluster 3 had higher proportion of males (59% versus 41% females; p = 0·001). Whilst cluster one had an equal spilt (48% male/ 52% female). An association with weight status across clusters was observed, with 47% of cluster one classified as overweight/obese compared to 27% in cluster 2 and 26% in cluster 3 (p = 0·008). Further analysis is required to determine the total effect of dietary patterns on overall health of these individuals.

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