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The nutritional profile of plant-based meat alternatives compared with meat products: an audit of products available in the UK and Ireland

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A growing concern around animal welfare and the environmental impact of food production and consumption has resulted in an increased demand for plant-based meat alternatives (PBMAs) in the UK and Ireland(1).

While the popularity of these products is increasing, little is known about their nutritional composition in comparison to equivalent meat products(2). Therefore, objective of this study was to measure how the nutritional content of PBMAs currently available in UK and Irish supermarkets compares with equivalent meat products. An online audit of PBMAs available in Tesco and Sainsbury's was conducted between February and April 2021. PBMAs were defined as products which aimed to imitate meat. On-pack information including nutritional content, claims, ingredients and packaging materials was extracted and organised into four interrelated Excel databases. Categories were used to group similar products together such as 'Burgers' and 'Sausages'. Nutritional data for meat products (per 100g) was sourced from Nutritics software(3) and compared with PBMAs using the one sample t-test to determine if differences in the mean nutrient contents for different categories of PBMAs and equivalent meat products were statistically significant at the 5% level.351 products were identified across 20 categories. Products included in the meat-free chicken (n = 71), sausages (n = 56), burgers (n = 49), beef (n = 30), mince (n = 13), pork (excluding sausages) (n = 13) and fish-free seafood (n = 9) categories accounted for ~70% of all the products and these seven categories were included in the current analysis. Per 100 g, PBMAs had a significantly lower mean energy, protein, total fat, and saturated fat content than meat in ≥5/7 categories. Mean salt, sugar and fibre content was significantly higher for PBMAs in 4/7, 5/7 and 7/7 categories respectively. PBMAs had a more favourable nutritional profile than meat for the burgers, sausages and pork categories. Meat-free chicken and fish-free fish performed worse when compared with chicken breast and cod fillets and better when compared with breaded/coated chicken and fish. On-pack labelling of micronutrient composition was limited. Across the categories, PBMAs were lower in energy, protein, total fat and saturated fat content, and higher in fibre, sugar and salt content compared to meat products. Within the categories, PBMAs designed to replace more processed meats such as burgers, sausages, pork and breaded chicken, performed better than their meat equivalents, whilst PBMAs designed to replace less processed meats such as mince, beef and chicken breast performed worse than their meat equivalents. Therefore, the nutritional impact of substituting meat with PBMAs depends on the meat product being replaced, its level of processing and the PBMA used in its place. With on-pack labelling of the micronutrient content of PBMAs limited, a knowledge gap exists on how these products compare to meat in vitamin and mineral content.

References

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