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## Comparison of consumed portion sizes and serving sizes in UK energy dense snack foods

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### Abstract

Obesity is a major health problem facing the European population; over two thirds (67%) of UK adult men and 58% women are overweight or obese <sup>(1)</sup>. The positive association between on-pack serving-size and food intake is known as the ‘portion size effect’. However, although direct links with obesity remain unproven, evidence suggests that limiting consumed portion size contributes to reduced energy intake and therefore reduced weight gain <sup>(2)</sup>. UK portion size guidance is outdated and evidence suggests that on-pack serving-sizes have increased in some energy-dense foods <sup>(3)</sup>. This study explores consumed portion sizes and on-pack serving-sizes in popular energy, fat and sugar-dense foods.

The UK National Diet & Nutrition Survey 2008–2014 (n = 2377) dataset was used to identify commonly consumed energy, fat and sugar-dense foods. Data was analysed for adults aged 19–64y (excluding under-reporters) for consumed portion sizes, and a commercial product database of major UK retailer and manufacturer data provided serving-sizes. Commonly consumed energy, fat and sugar-dense food groups were split into 45 product-based subgroups. Means of consumed portion size and on-pack serving-size were calculated and compared and nutrition per 100 g and per serve was explored.

Just 57% products had serving-size details, whereas 97% had pack-size information; Chocolate had the least products with serving-size information (35%). Lack of on-pack serving-size guidance is therefore a widespread issue, particularly in some energy-dense snack foods. Serving-size ranges were wide and varied across food groups. Consumed portion sizes were significantly higher than on-pack serving-size in all main food groups and most subgroups. The greatest difference between consumed portion size and on-pack serving-size was Crisps (44%), and within this, ‘popcorn’ (151%). There is a real need for policies aimed at setting product pack and serving-sizes that help individuals consume smaller portions. However, further consideration is needed on how consumers understand on-pack serving-size messaging, front-of-pack labelling and pack size.

Serving-size was unavailable for many products. However, where available, consumed portion sizes were higher than on-pack serving-size in all main food groups and most subgroups. These results could inform updated portion size guidance of energy-dense foods. Further work is needed to clarify whether smaller serving and pack sizes would lead to lower total consumption and energy/nutrient intake.

### Conflict of Interest

There is no conflict of interest.

### References

1. PHE (2017) *Patterns and trends in adult obesity*. London.
2. WHO (2014) *Limiting portion sizes to reduce the risk of childhood overweight and obesity*. WHO.
3. Clift (2013) *Portion distortion: how much are we really eating?* London: BHF.