

Report on the Food Standards Agency Workshop on portion size

1. On 15 April 2008, the Food Standards Agency hosted a portion size workshop attended by academic experts in the field of portion size and obesity research. The workshop was chaired by Dr Susan Jebb (MRC Human Nutrition Research, Head of Nutrition and Health Research). A list of attendees is provided in Annex I.
2. The purpose of the workshop was to assess the evidence around portion size and its impact on energy intake and weight, identify gaps in the knowledge base and, where possible, identify potential actions on portion size that would most likely offer a benefit for consumers. The workshop supported the developing government policy on portion sizes of foods and drinks, which forms part of the Food Standards Agency's Saturated Fat and Energy Intake Programme and much wider government initiatives to address the rising levels of overweight and obesity in the UK, including the Westminster Government's Healthy Weight Healthy Lives Strategy. The terms of reference and agenda of the workshop are provided in Annex II.
3. Dr Susan Jebb opened the meeting outlining the purpose of the workshop and introducing the background papers (see Annex III for references).

Evidence base

4. The workshop considered the question 'is portion size an issue in terms of intakes of fat, salt, sugars and energy?'. There was general agreement that consumers have a poor ability to estimate how much of a food they have consumed and this was particularly the case for larger portion sizes.
5. The workshop discussed the experimental evidence on the role of portion size of energy dense food on energy intake. Studies had shown that consumption of large portion sizes was not fully compensated for at subsequent eating occasions and therefore total energy intake increased. It was noted that experimental evidence had focused on adults in a controlled environment and that there was relatively little evidence showing the impact of increased portion sizes on children. Portion size was considered to have little impact on consumption behaviour of pre-school age children. There was considered to be little evidence of a direct association between portion size and weight gain and an absence of evidence relating to behavioural/cognitive issues (such as the accuracy of portion size assessment) that may influence the response to portion size. Most research has been conducted in unrestrained eaters and the relationship between portion size and energy intake in a weight conscious population is less clear.
6. For consumers seeking support to control their weight, specific tools such as portion controlled meal-replacement products, explicit serving sizes and portion measures (e.g. Rosemary Conley portion pots, pre-portioned plates) were

considered to be valuable. However the acceptability and impact in the general population were unknown. There is little research on very small portions. There was considerable discussion of the importance of structured eating habits. This is independent of portion size per se, but both are important in improving the nutritional balance of the diet and optimising energy intake.

7. Based on these discussions, the workshop considered the case for action in the portion size area. Potential issues that were raised included the focus for any action – portion size research tended to focus on energy-dense foods or sugar-rich drinks and there is little research on the impact of portion size on, for example, fruit and vegetable consumption. The variability of habitual portion sizes and energy/nutrient requirements between individuals makes prescriptive advice complex.
8. Frequency of consumption was highlighted as a key issue affecting the overall diet - evidence was discussed that showed that lower fat options could potentially be viewed by some consumers as a licence to consume more and concerns were expressed that very small portions may act as a similar stimulus to consumption. There was a lack of information about how consumers use larger sharer packs and their impact on consumption levels and frequency.
9. Susan Church (independent public health nutritionist) provided a brief overview of her research into the trends in portion size in the UK over the past 15 years. She highlighted the key finding that the range of portion sizes had increased, with more products being offered in a greater number of portion and packaging sizes. Increases in portion sizes had been noted for some fast food products and ready meals. On the latter, it was noted that it was not clear from the data what component of the ready meals had increased to account for the larger total portion size, how ready meals were consumed in the home (alone or with accompaniments) or how the new portion sizes related to the quantity of equivalent homemade dishes consumed in one sitting.
10. The workshop acknowledged that multipacks were often composed of smaller portion sized products than their standard individually-sold versions. But it was questionable as to whether this was delivering the anticipated benefit considering the restricted availability of multipacks and acknowledgment that ‘presence drives consumption’, i.e. does the frequency of consumption of products sold in multipacks increase simply because they are in the home?
11. The evidence indicated that portion sizes had not increased across all foods available, but the strength of the evidence around portion size and energy intakes led the workshop to conclude that there was a need for action in this area – progress towards achieving a healthier balance in the diet was noted to require action across various areas, including reformulation, and portion size was a key part of the solution. The impact of such action on waste and cost should be considered.

Conclusions

Facts on evidence

12. It was agreed that the experimental evidence for adults showed that portion size was a significant determinant for total energy intake under experimentally controlled situations but currently there was a lack of epidemiological evidence to identify a correlation between portion size and weight gain. Although this was a logical conclusion, studies tended to look at more proximal outcomes, given the many factors contributing to weight change.
13. There was insufficient evidence to develop firm conclusions on the impact behavioural and social issues had on portion size choices made by individuals and the link to weight change.
14. Evidence showed that the range of portion sizes on offer had increased and portion sizes of some fast foods and ready meals had increased in the UK over the past 15 years.

Recommendations

15. The workshop agreed that action on portion size should be explored further as portion size formed a key element in helping consumers to achieve a healthy balanced diet to prevent obesity.

Potential for action

16. Dr Alison Tedstone (Head of Nutrition Science, Food Standards Agency) presented an overview of the findings of secondary analysis on data collated as part of the National Diet and Nutrition Survey on young people¹ and manufacturers' labelled portion sizes, which showed that, for young people aged 4-18 years:
 - portion sizes consumed tend to increase with age
 - portion sizes consumed can vary within age groups
 - portion sizes consumed tend to be greater than the portion/serving size indicated on the food label and this deviation from the labelled portion/serving size appeared more pronounced in the older age groups
 - portion/serving sizes indicated on food labels varied within food groups.
17. Professor Annie Anderson (University of Dundee) outlined her research on portion size tools and their use. She explained that initial findings had shown that

¹ National Diet and Nutrition Survey: young people aged 4 to 18 years. Volume 1: report of the diet and nutrition survey. Gregory et al, London: The Stationery Office, 2000.

consumers' views on the usefulness of portion size advice differed. Some welcomed guidance on appropriate portion sizes, some were already receiving some advice from a variety of sources that could result in confusion. Others felt that such advice was unwelcome and/or only appropriate for those concerned about their weight. Some dietitians had commented that consumers wanted to know more about portion sizes yet health promotion professionals felt that additional information on portion sizes could be too much information for consumers.

18. Sue Baic (University of Bristol) reported that, in her work with consumers in retail settings, the issue of appropriate portion sizes was frequently raised and she felt that consumers were interested to learn more about this. It was noted that lack of understanding of portion sizes extended to fruit and vegetables.
19. There was agreement that, under experimental conditions using controlled portion sizes, respondents felt that portion control was helpful. It was noted that tools devised to indicate appropriate portion sizes (such as plates, bowls etc) were popular amongst weight conscious consumers.

Industry action

20. The availability of portion/serving size information on many food labels was noted. It was concluded that there was a lack of evidence about consumer awareness of this information and that consumers did not spontaneously mention the portion/serving size as an important and useful element of the food label. However, such information could be considered valuable for products packaged in bulk packages, such as share-bag crisps. Further consideration of labelling practices was considered important in exploring how best to help the consumer.
21. It was agreed that if advice on appropriate portion sizes was to be developed, it had to be in a form that was useful to the consumer. Grams were considered difficult to visualise and volume estimates were preferred. Suggestions included portion size advice in the form of 'handfuls', which closely related to body size and hence requirements, and 'cups/spoons etc'. Guidance for meal components was considered less useful than for ready-to-eat items.
22. It was noted that for some products on the market today the portion/serving size given on the label was not well aligned to the packaging e.g. a 250ml serving size for 500ml bottles of drinks.
23. It was noted that consumers may buy larger packs for economic reasons, namely value-for-money, and the workshop suggested that industry should promote smaller packs of the product and reduce economic incentives to buy more.
24. Industry action to reduce portion size should be encouraged for relevant foods but should be designed to minimise risk of increased frequency of consumption,

which would negate the purpose of reducing portion size. Concern was expressed that multipacks of smaller portions could control portion size but liberalise frequency. There was a suggestion that work to reduce portion size with industry should not tempt consumers to eat several small portions and also include bigger packages (particularly the bigger 'extra value' packets of crisps), which may be used as meal replacements.

25. Portioning snacks according to an agreed energy contribution to the total diet could help. Guidance provided by the Caroline Walker Trust and the FSA's institutional guidance set out an approach to the calorie allocation across the day. It was also noted that a clear definition about the terminology around snacks should be developed – snacking appeared to be determined by time of consumption, rather than food-type. It was noted that there was no evidence to support a specific health effect attributable to the energy distribution throughout the day.
26. The role of the foodservice sector was considered, with views that consideration should be given to the value-for-money promotions that are used. There may be support to constrain portion size through action to reduce such strategies such as free refills of soft drinks, extra value extra large meals and eat-as-much-as-you-like buffets.

Raising consumer awareness about portion sizes

27. The group recognised the differing views of consumers on the issue of portion size advice, but felt that, although some may find portion size advice overly prescriptive, many would be interested to learn more, particularly when presented in the context of a normal/average portion size.
28. It was agreed that any portion size advice must be accessible to the consumer, i.e. provided in volumetric terms (such as handful) rather than in grams. The Department of Health postcard on fruit and vegetable portion sizes was highlighted as an example of how this information could be communicated to a wider audience. Portion size advice published for the American and Canadian consumer was shown as examples of how other countries have addressed this issue although it was not clear at the workshop how such detailed advice had been developed or the impact such advice had on behaviour.
29. Portion size advice for the consumer was agreed to be useful as a tool but could not deliver improvements in the diet for all nutrients. Therefore such advice needed to take account of priority nutrition issues and the clarity of overall health and nutrition messages to consumers.
30. The basis of any advice to consumers was discussed. The workshop felt that developing 'recommended' portion sizes would be difficult given variability in energy needs. It might be helpful to develop advice based on the average

consumed amongst the population. Efforts could then be focused on reaching those who consumed above average portion sizes. This would tie in with evidence to suggest that many respondents to dietary surveys under-report on the amount of food consumed and therefore the average portion size calculated on the basis of information collated from dietary surveys would most likely be on the lower side. However, it was noted that the government had not taken an average approach in developing portion size advice on fruit and vegetables, but rather an aspirational approach of recommended consumption. This difference might be justified on the basis of different goals to increase consumption (fruit and vegetables) or decrease consumption (energy dense foods).

Foods

31. Suggested foods for focus for consumer advice and industry action included foods that were the key contributors to saturated fat intakes in the diet (including meat and dairy products), single-serve/impulse purchase sweet and savoury snacks. Soft drinks and other beverages were also important due to the satiety issues related to the consumption of these products. Ready meals, although highlighted as a food group for which portion sizes have increased in recent years, were considered to be too diverse to easily develop specific action on portion size. Concerns were also expressed that if consumed as the sole item of a meal these may be considered by some to be rather small.

Overall conclusions on potential for action

32. The workshop agreed the following:

Action by and with industry

- Industry, including foodservice, to explore the opportunities to market reduced portion sizes.
- Industry to avoid ‘value-for-money’ promotions which encourage increased consumption of energy dense, salty foods.
- Explore the potential for guidance to industry on pre-portioning ready to eat ‘snack’ products according to energy contribution to the diet.

Consumer awareness

Recommendations for potential additional research:

- Research into behavioural effects on portion size and energy intake – at what point does smaller portion size increase frequency of consumption and do multipacks impact on overall consumption?
- Intervention research – on the impact of consumer messages about portion size on weight and nutritional balance. Investigation of the mechanistic basis for portion size effects on energy intake.

Other recommendations:

- There may be scope to develop advice and practical tools for consumers related to portion size, which would need to be tested with consumers to ensure acceptability.
- Any consumer advice on portion size would most likely be effective if it was based on visual/graphic images and use volumetric measures.
- Identify the lessons learnt during the development of the Department of Health campaign on 5-a-day fruit and vegetable consumption.

Foods

- Key foods identified for action:
 - Key contributors to saturated fat intakes, including meat and dairy products
 - Sweet and savoury snacks, including confectionery, biscuits and cakes
 - Sugary drinks and other beverages, including coffees with added fat/sugar.

Vulnerable groups

33. The workshop discussed whether there were any specific at-risk groups within the population for which the actions described above may have adverse effects. The Low Income Dietary and Nutrition Survey² was cited as providing a guide on this issue and showed that there were fewer overt differences in nutrient intakes compared to the general population than was often assumed.
34. Young children were considered and it was noted that any generic messaging on portion size would not be aimed at, or for, young children.
35. There were no specific risks related to portion size advice highlighted for the elderly or those with particular malnutrition issues as groups such as these with specific dietary needs were likely to meet their energy needs via alternative means than the foods highlighted for focus.

Conclusions

36. The workshop did not consider any particular vulnerable groups to be at risk of adverse impacts from guidance aimed at or practical interventions to reduce portion size of the specific foods discussed.

² Low income diet and nutrition survey. Nelson et al, London:TSO, 2007.

Next steps

37. The Agency agreed to consider the issues raised during the workshop alongside ongoing work on reformulation and issues related to frequency of consumption and meal/eating structure.

Annex I: List of attendees

Attendees	Institution
Dr Susan Jebb, Chair	MRC –Human Nutrition Research
Professor Barbara Livingstone	University of Ulster
Dr Janet Cade	University of Leeds
Professor Marion Hetherington	Glasgow Caledonian University
Professor Annie Anderson	University of Dundee
Dr Wendy Wrieden	University of Aberdeen
Dr Ashley Adamson	University of Newcastle
Professor Carolyn Summerbell	University of Teesside
Sue Baic	University of Bristol
Observers	
Clara Swinson	Department of Health
Rosemary Hignett	Food Standards Agency
Dr Corinne Vaughan	Food Standards Agency
Dr Alison Tedstone	Food Standards Agency
Judith Holden	Food Standards Agency
Gabrielle Owtram	Food Standards Agency
Heather Peace	Food Standards Agency Scotland
Susan Church	Independent Public Health Nutritionist

Annex II: Terms of reference and agenda

Purpose

The issue of how much we eat and drink, and of what, and the impact that this has on the health of the population has become more high profile over recent times as greater focus is placed on tackling the trend in rising obesity and overweight and their health consequences.

Westminster Government's obesity strategy for England – Healthy Weight, Healthy Lives – outlines a support programme to help people maintain a healthy weight and sets out how this may be achieved. This includes a call on the food and drink industry to commit to working towards a Healthy Food Code of Good Practice incorporating elements that impact on portion size control and advice. Obesity initiatives are also underway in Scotland and Northern Ireland.

In support of these initiatives, through its Saturated Fat and Energy Intake Programme, the Food Standards Agency is committed to reducing population average intakes of saturated fat to within the public health recommendation and to help tackle rising obesity levels through the development of a strategy to address calorie intake levels in line with needs. The Programme comprises four areas for focus:

- improving consumer awareness and understanding of healthy eating with particular focus on the impact of saturated fat on health;
- encouraging promotion and increased uptake of healthier options e.g. reduced fat products and retailers' 'healthier' ranges;
- encouraging increased accessibility of smaller food portion sizes; and
- encouraging voluntary reformulation of mainstream products to reduce saturated fat and energy.

This workshop has been convened to support the developing government policy on portion sizes of food and drinks available to consumers. It will assess the evidence around portion size and its impact on weight, identify gaps in our knowledge and, where possible, identify possible actions on portion size that are most likely to achieve a benefit for consumers.

Terms of Reference

To consider the evidence in relation to the impact of portion size of food and drink on energy intake and weight management.

To provide advice on what actions by government, industry and other organisations in relation to portion size could be beneficial in helping consumers to control their weight.

Note that nutrient profiling and front-of-pack labelling are subject to independent review and therefore do not form part of this exercise.

Agenda

9.30 am

Welcome and introductions

9.45 am

Evidence base

What is the evidence on the impact of portion size on energy and nutrient intake, and on weight management, including the strength of that evidence and its limitations?

10.45 am

Potential for action

What action on portion sizes could prove beneficial to consumers in helping them to balance energy intakes and maintain weight?

- Portion size recommendations for different foods or different age groups through, for example, advice direct to the consumer or recommendations to industry?
- How does such action apply to different occasions faced by the consumer, e.g. prepackaged single portion products, prepackaged multi-portion products, homemade?
- What role does industry play?
- What role does consumer awareness play?

12.30 pm

Vulnerable groups

Are there any specific at-risk population subgroups for which the above actions could adversely impact and, if so, what advice or action could be taken to overcome this?

[Individuals with specific conditions under specialist medical supervision may be considered to be outside the scope of this discussion]

1 pm

Next steps

The workshop may wish to consider

- Recommendations for next steps
- What, if any, further research should be undertaken to support the work on portion size?

1.30 pm

Any other business

Annex III: Background papers

Church S.

Trends in portion sizes in the UK - a preliminary review of published information.
Report to the Food Standards Agency. March 2008.

Colapinto C K, Fitzgerald A, Taper LJ, Veugelers PJ.

Children's Preference for Large Portions: Prevalence, Determinants, and
Consequences.

J Am Diet Assoc. 2007, 107:1183-1190.

Diliberti N, Bordi PL, Conklin MT, Roe LS, Rolls BJ.

Increased Portion Size Leads to Increased: Energy Intake in a Restaurant Meal.

Obesity Research. 2004, 12: 562-568.

Ello-Martin JA, Ledikwe JH, Rolls BJ.

The influence of food portion size and energy density on energy intake: implications
for weight management.

Am J Clin Nutr. 2005, 82: 236S-241S.

Fisher JO, Kral TVE.

Super-size me: Portion size effects on young children's eating.

Physiol Behav. 2008, doi:10.1016/j.physbeh.2007.11.015

Matthiessen J, Fagt S, Biloft-Jensen A, Beck AM, Ovesen L.

Size makes a difference.

Public Health Nutrition. 2003, 6: 65-72.

Nielsen SJ, Popkin BM.

Patterns and Trends in Food Portion Sizes, 1977-1998.

JAMA. 2003, 289: 450-453.

Raynor HA, Wing RR.

Package Unit Size and Amount of Food: Do Both Influence Intake?

Obesity. 2007, 15: 2311-2319.

Rolls BJ.

The Supersizing of America: Portion Size and the Obesity Epidemic.

Nutrition Today. 2003, 38: 42-53.

Rolls BJ, Roe LS, Meengs JS.

The Effect of Large Portion Sizes on Energy Intake Is Sustained for 11 Days.

Obesity. 2007, 15: 1535-1543.

Van Ittersum K, Wansink B.
Do Children Really Prefer Large Portions? Visual Illusions Bias Their Estimates and Intake.
J Am Diet Assoc. 2007, 107:1107-1110.

Wansink B, Van Ittersum K.
Portion Size Me: Downsizing Our Consumption Norms.
J Am Diet Assoc. 2007, 107:1103-1106.