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# **Salt Reduction in Action**

## **Crumpets: a Technical Report**

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**December 2020**

## BACKGROUND

Consuming too much salt increases the risk of high blood pressure, a silent killer given it often has no symptoms, which is a risk factor for preventable diseases such as heart disease and stroke, the two biggest causes of death and ill health in the UK and worldwide.

Globally, 11.5 million deaths were caused by high blood pressure in 2019, 88,000 in the UK (Figure 1), with a high salt intake thought to be responsible for 2 million deaths globally, 6,600 in the UK.

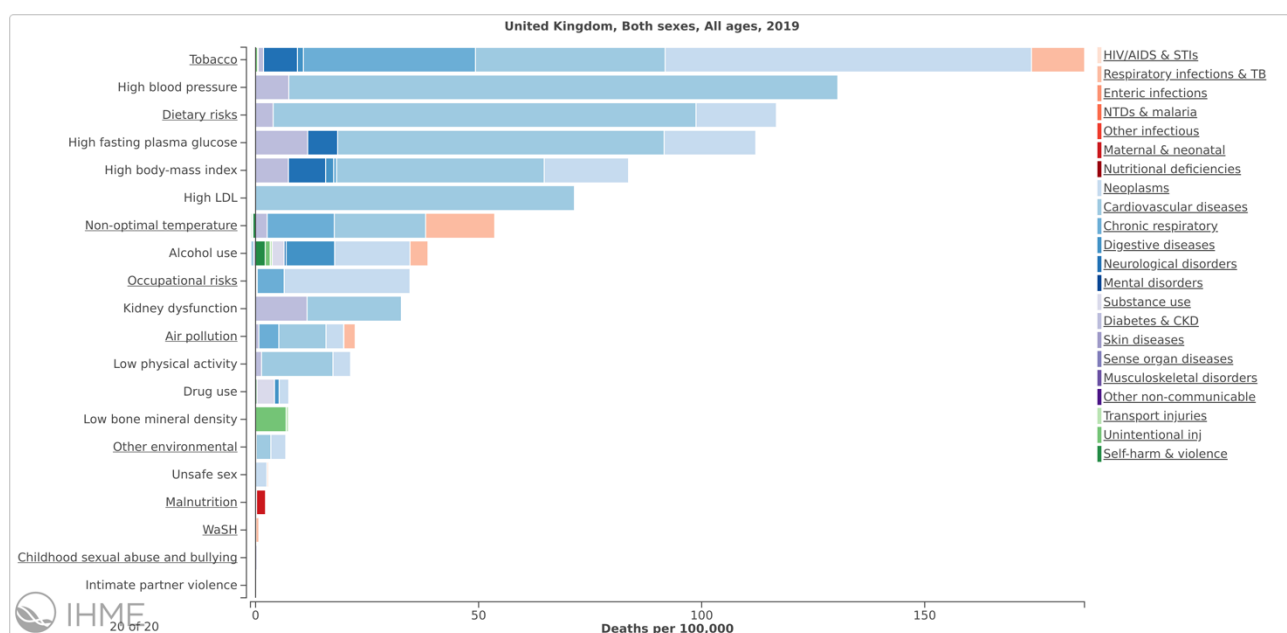


Figure 1. Deaths in the UK attributed to risk factors, 2019. Global Burden of Disease

Recent data from the National Diet and Nutrition Survey has found that on average adults consume 8.4g of salt per day<sup>1</sup>, 40% more than the maximum daily recommended intake of 6g. Reducing salt intake is considered the most cost-effective strategy that can be adopted to improve population health outcomes<sup>2</sup>. As such, the UK Government developed comprehensive voluntary salt reduction targets for retailers, manufacturers and the out of home sector<sup>3</sup>. Salt reduction targets are currently set for 84 specific categories of food and are continuously reviewed to allow for gradual stepwise reductions across the food sector.

One of the largest contributors of salt in our diets comes from the broad 'bread' category, which includes morning goods such as crumpets. Crumpets are a common household purchase in the UK, with recent data suggesting a 55% increase in sales during the COVID-19 UK lockdown<sup>4</sup>. The target for crumpets, under morning goods (powder raised), had a maximum target set at 1.25g salt/100g to be achieved by 2017 and has been further reduced to 1.19g salt/100g to be achieved by 2024<sup>5</sup>. Public Health England's (PHE) second progress report published in September 2020, found that the proportion of morning goods meeting the maximum salt target was 75% for manufacturers, 97% for retailers, and 90% for the Out of Home sector<sup>6</sup>.

## **AIM**

The purpose of this current report is to investigate the salt content within store-bought crumpets, and to assess manufacturer and retailer progress in meeting the 2017 and new 2024 salt reduction targets. This report aims to highlight successful case studies of where salt content has been reduced successfully, and to provide technical solutions for reducing salt further.

## **METHODS**

### **DATA COLLECTION**

Action on Salt surveyed crumpets available from all major retailers; Aldi, Asda, Co-op, Iceland, Lidl, Marks & Spencer's, Morrison's, Ocado, Sainsbury's, Tesco and Waitrose.

Nutrition information was collected between 17.09.2020 and 23.10.2020 online via retailers' and manufacturers' websites, as well as from product packaging instore, and shared with manufacturers and retailers for verification. When more than one pack size was available, the standard pack was used to avoid duplication.

### **DATA ANALYSIS**

The average salt content per 100g and per portion was calculated, and any differences between supermarket own-brand and branded products were assessed. Their progress towards achieving the maximum salt reduction targets for 2017 and 2024 were also measured.

#### Comparison of the same products over the years

Given the availability of earlier data<sup>7</sup>, we also compared the salt content of crumpets between 2016 and 2020. Only the crumpets with data available in both years were assessed.

### **PUBLIC OPINION**

A twitter poll was conducted by Action on Salt to determine consumer opinions on acceptable portion sizes, to allow for a clear comparison against the recommended maximum salt intake.

### **INDUSTRY ENGAGEMENT**

The results of the survey were shared with relevant members of the food industry who were asked for input in their commitment to salt reduction and potential barriers to making further progress.

# RESULTS

## KEY FINDINGS

- Average salt content of crumpets is 1.15g/100g
- Average salt content per portion\* was 0.65g
- 89% (25/28) of crumpets meet the 2017 maximum salt reduction targets for morning goods (powder raised), 1.25g/100g
- 68% (19/28) meet the 2024 maximum salt reduction targets, 1.19g/100g

\*per standard sized crumpet, excluding giant or thin crumpets if stated on packaging

**Table 1. Salt content of crumpets available in major UK retailers (2020), values per portion and per 100g**

Company	Product Name	Portion Size (g)	Energy (kcal) /100g	Salt / 100g	Salt /portion (g)
Warburtons	Warburtons Giant Crumpets	105	170	1.48	1.55
Warburtons	Warburtons Crumpets	55	176	1.48	0.81
Warburtons	Warburtons Gluten Free Crumpets	73	168	1.43	1.04
Kingsmill	Kingsmill Crumpets	54	188	1.25	0.68
M&S	M&S Ultimate Crumpets	55	165	1.23	0.68
M&S	M&S Ultimate Multi Grain Crumpets	55	186	1.23	0.68
Morrisons	Morrisons Crumpets	57	174	1.22	0.69
Tesco	Tesco Finest Sourdough Crumpets	55	181	1.2	0.70
Aldi	Aldi Specially Selected Sourdough Crumpets	55	185	1.2	0.63
Kingsmill	Kingsmill Rolling Crumpets	62	261	1.18	0.73
Morrisons	Morrisons The Best Sourdough Crumpets	55	189	1.17	0.64
The Village Bakery	Village Bakery Crumpets	55	172	1.15	0.63
Sainsbury's	Sainsbury's Taste the Difference Luxury Sourdough Crumpets	55	169	1.14	0.63
Genius	Genius Gluten Free Crumpets	55	194	1.13	0.62
Asda	Asda Toaster Crumpets	75	180	1.1	0.85
Waitrose	Waitrose 6 Seeded Crumpets	55	179	1.1	0.62
Aldi	Aldi Village Bakery Fluffy Crumpets Super Soft & Light	56	206	1.1	0.60
Waitrose	Waitrose Sourdough Crumpets	55	172	1.1	0.59
Asda	Asda Crumpets	50	213	1.1	0.55
Kingsmill	Kingsmill Crumpet Thins	27	195	1.1	0.30
The Co-op	Co-op Crumpet Creations	60	188	1.07	0.64
Sainsbury's	Sainsbury's Crumpets	52	206	1.07	0.56
Lidl	Lidl Rowan Hill Bakery Thick & Fluffy Crumpets	55	178	1.02	0.56
Aldi	Aldi Village Bakery Giant Crumpets Big & Fluffy	100	182	1	1.00
Tesco	Tesco Crumpets	55	181	1	0.60
The Co-op	Co-op Irresistible Buttermilk Enriched Sourdough Crumpets	54	187	1	0.54
Asda	Asda Ghost Crumpets	53	174	1	0.53
Sainsbury's	Sainsbury's Taste the Difference Luxury Multiseed Sourdough Crumpets	55	167	0.94	0.52

A total of 28 crumpets were collected and included in this survey (Table 1), from 13 companies (9 supermarkets, 4 manufacturers). The salt content varied from 0.94 - 1.48g/100g salt, a 57% difference. The majority of crumpets are supermarket own brand (20/28), with an average salt content of 1.1g/100g (0.94 - 1.23g/100g). Branded crumpets (8/28) were higher in salt with an average salt content of 1.28g/100g (1.1 - 1.48g/100g).

Data suggests no difference in salt content between supermarket economy (average 1.10g/100g) and premium ranges (average 1.11g/100g). Whilst no difference could be observed between gluten containing and gluten free crumpets, there was a large variation between the 2 gluten free crumpets included in the survey (1.43g/100g vs 1.13g/100g).

All products surveyed would have an amber colour for salt content on front of pack labelling.

## SERVING SIZE

Serving sizes vary across the market, with giant, standard and thin sizes available (as defined by product name). Two giant crumpets were included in the survey, at 105g and 100g per crumpet, and 1 thin sized crumpet, at 27g. The remaining 25 crumpets were considered 'standard', and yet still ranged from 50-80g in size, with the most common serving size approximately 55g (Figure 2). The salt content per crumpet ranged from:

- 1.00 - 1.55g for the giant crumpets
- 0.3g for the thin crumpet
- 0.52 - 1.04g for the standard sized crumpets

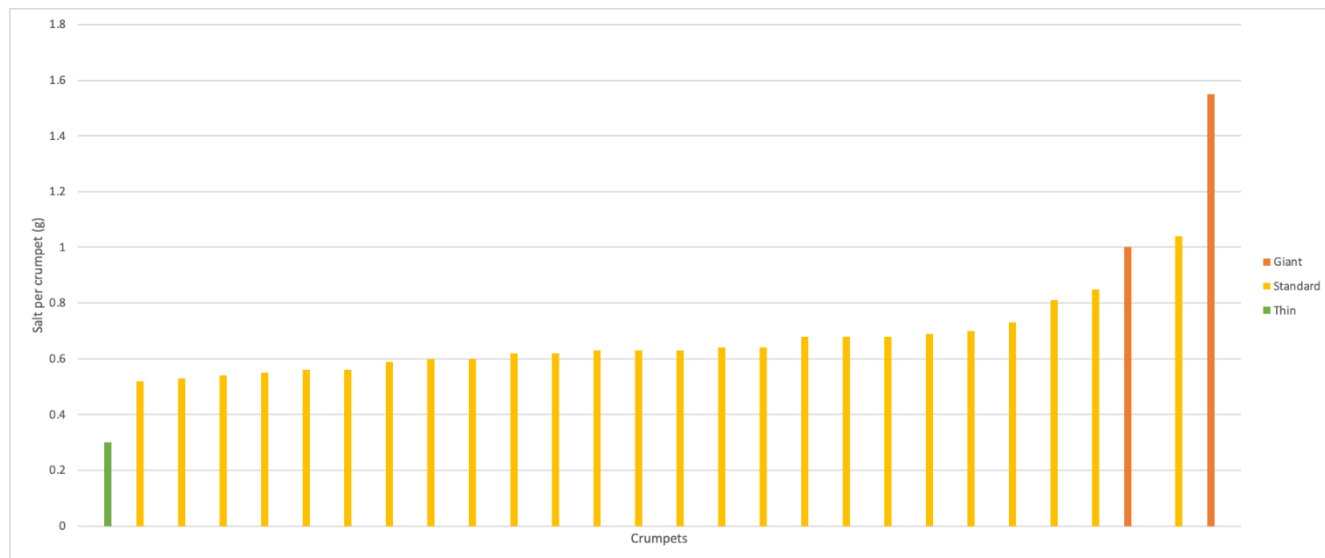


Figure 2. Salt content (g) of crumpets per portion

Where a serving was suggested on pack or online, the majority stated this as one crumpet. A recent Twitter poll, conducted by Action on Salt in October 2020, asked the public how many crumpets they would usually eat per serving. From the 70 people who responded, the majority stated they consume 2 crumpets per serving (64.3%), followed by 3 crumpets (17.1%) (Figure 3).



**Figure 3. Twitter poll of crumpet serving size consumed**

## SALT TARGETS

All the supermarket own brand crumpets have successfully achieved the 2017 maximum salt target for morning goods (powder raised), and 75% have already achieved the 2024 maximum salt target (Table 2). Similarly, most of the manufacturer's crumpets have also achieved the 2017 maximum salt target, apart from Warburtons; all three of Warburtons crumpets exceed the maximum target of 1.25g/100g. With respect to the 2024 targets, 50% (4/8) fall short of the maximum salt target. No comments can be made on sales weighted averages due to restrictions in data access.

**Table 2. Average salt content of crumpets from different retailers and manufacturers, and the percentage meeting the maximum salt target for morning goods (powder raised).**

Company	Number of products	Average salt/100g ± Standard Deviation (Range)	% Achieving max target 2017 (1.25/100g)	% Achieving max target 2024 (1.19/100g)
Lidl	1	1.02	100%	100%
Co-op	2	1.04 ± 0.049 (1 - 1.07)	100%	100%
Sainsburys	3	1.05 ± 0.101 (0.94 - 1.14)	100%	100%
Asda	3	1.07 ± 0.058 (1 - 1.1)	100%	100%
Aldi	3	1.1 ± 0.1 (1 - 1.2)	100%	67%
Tesco	2	1.1 ± 0.141 (1 - 1.2)	100%	50%
Waitrose	2	1.1	100%	100%
Genius	1	1.13	100%	100%
Kingsmill	3	1.18 ± 0.075 (1.1 - 1.25)	100%	67%
Village Bakery	1	1.15	100%	100%
Morrisons	2	1.2 ± 0.035 (1.17 - 1.22)	100%	50%
M&S	2	1.23	100%	0%
Warburtons	3	1.46 ± 0.029 (1.43 - 1.48)	0%	0%

## INGREDIENTS

The total salt in crumpets is attributed to both added salt, and to raising agents such as sodium bicarbonate. In most cases, the raising agent is often listed before salt in the ingredients list, meaning they are used in greater amounts.

Lower sodium alternatives to salt and raising agents can be used. Of the 28 crumpets surveyed, half (50%) listed potassium-based raising agents (potassium carbonate/potassium hydrogen carbonate) in their ingredients. This, however, didn't necessarily yield a consistently lower overall salt content, with variation still present, e.g., Sainsbury's Taste the Difference Luxury Multiseed Sourdough Crumpets 0.94g/100g (listing potassium hydrogen carbonate), and Morrison's Crumpets 1.22g/100g (listing potassium carbonates).

## SALT CONTENT OVER TIME

The average salt content of crumpets available in 2016 was 1.12g/100, and this has remained relatively unchanged in 2020. There were 11 crumpets from 8 different companies (3 branded and 5 supermarket own brand) that were surveyed in both 2016 and 2020 (Table 3). The average salt per 100g for these 11 crumpets was 1.18g/100g in 2016 and 1.22g/100g in 2020. Two products increased their salt content by 0.38g/100g (36%) and 0.25g/100g (26%), whereas the remainder remained unchanged (See Table 3). A <5% margin of error has been applied to account for changes in analysis methodology.

**Table 3. Salt Content of Comparable Products in the 2016 and 2020 Crumpet Surveys**

Product Name	2016 Salt per 100g	2020 Salt per 100g	Percentage Difference
Warburtons Giant Crumpets	1.48	1.48	0%
Warburtons Crumpets	1.48	1.48	0%
Warburtons Gluten Free Crumpets	1.05	1.43	+36%
Kingsmill Crumpets	1.20	1.25	+4%
M&S Ultimate Crumpets	1.23	1.23	0%
M&S Ultimate Multi Grain Crumpets	1.23	1.23	0%
Genius Gluten Free Crumpets	1.17	1.13	-3%
Morrisons Crumpets	0.97	1.22	+26%
Sainsbury's Crumpets	1.12	1.07	-4%
Lidl Rowan Hill Bakery Thick & Fluffy Crumpets	1.00	1.02	+2%
Tesco Crumpets	1.00	1.00	0%

## SALT REDUCTION SOLUTIONS

In the case of crumpets, total salt can come from both added salt and a raising agent such as sodium bicarbonate. As well as reducing the amount of added salt, the use of low sodium alternatives, such as potassium is now accepted by PHE as a suitable and safe alternative following a review by the Scientific Advisory Committee on Nutrition (SACN) and the Committee on Toxicity (COT)<sup>8</sup>. However, there is still some hesitation to adopt salt replacers due to perceived and actual implications to flavour, rise, texture and wanting 'cleaner' labels.

### 1. Raising Agents

Raising agents typically contain sodium, however there are potassium alternatives, which half of the crumpets surveyed currently use.

Raising agents, both biological (yeast) and chemical (baking powder), are necessary for the manufacture of crumpets. The main role of both ingredients is to produce carbon dioxide gas which gives volume to the product, however, whereas in a crumpet the yeast is used more for flavour, the baking powder has a significant impact on overall volume and creates the vertical air columns found in the crumpet structure.

Standard baking powder typically contains a combination of sodium bicarbonate (e500), the 'gas carrier', and sodium acid pyrophosphate (e450), the 'acidulant'. Although they are both functional ingredients, they significantly contribute to the total salt content of crumpets, often to a greater extent than the added salt in a recipe. Simply reducing the level of baking powder could impact on the volume, structure and shelf life of crumpets. An alternative to reducing the total salt content would be the use of low-sodium substitutes for these functional ingredients.

One option, which is shown to deliver the same consistency and stability during the production process is the use of potassium bicarbonate as an alternative to sodium bicarbonate (e500). The bicarbonate is simply where the carbon dioxide gas is stored and does not control how the baking powder reacts. Sodium and potassium are very similar elements; both are highly soluble with similar molecular weights and have identical gas release profiles when the same type of acidulant is used. Potassium bicarbonate can be used alongside sodium acid pyrophosphate, giving consistent and high-quality crumpets while still achieving a simple and effective reduction in total salt content.

### 2. Salt Replacers

Whilst the majority of the total salt of a crumpet is often attributed to the raising agents, there is also an element of added salt in the recipe, and therefore replacing added salt with a lower sodium alternative is another option. None of the crumpets surveyed declared the use of potassium or other suitable alternatives as a substitute for salt (sodium chloride) on their ingredients panel. However, mineral salts have been shown to be useful in controlling the growth of undesirable microorganisms.

#### Case Study

Smart Salt® improves shelf-life of baked products at salt levels as low as 0.7% w/w while maintaining consumer acceptability and is achieved without added preservatives<sup>9</sup>. In an industrial trial Smart Salt® was shown to maintain shelf life at 25% salt reduction and improve mould-free shelf life of crumpets by one day at 50% salt reduction levels.



### Effect of Mineral Salt Replacement (Smart Salt®) on Mould Free Shelf Life of Crumpets

Crumpet Recipes	Mould Free Shelf Life @21°C	Mould Free Shelf Life @4°C
No Salt Added Control	4	8
Full Salt Added Control (2% added salt)	5	23
25% Salt Reduction (Smart Salt®)	5	23
50% Salt Reduction (Smart Salt®)	6	60

### 3. Added Salt

Whilst a combination of using low sodium salt and potassium-based raising agents is one way to lower salt content in crumpets, some companies have managed to produce lower salt crumpets by simply reducing the amount of added salt, suggesting that this alone is enough to produce lower salt crumpets without the need for sodium replacers. e.g., Tesco Crumpets, which contain one of the lowest levels of salt (1g/100g) and doesn't use any sodium alternatives.

#### Case Study

Lidl's Rowan Hill Bakery Thick and Fluffy Crumpets contain 1.02g/100g. When asked for comment, Lidl confirmed the technique used was removing added salt:

*'Lidl have continued to drive salt reductions in line with PHE commitments. Lidl will always strive to reduce salt content, lowering the overall saltiness of the product, whilst ensuring a high quality. Only where this is not achievable will we investigate the use of alternative ingredients.'*

*Lidl's Rowan Hill Bakery Thick & Fluffy Crumpets have been successfully reduced in salt, already meeting the new 2024 targets set out by PHE. This salt reduction was achieved by simply removing added salt without using alternative ingredients. This recipe change was made without impacting on sales of taste.'*

### 4. Serving Size

Whilst it won't impact the total salt concentration per 100g of a product, food companies can consider altering the serving size of a crumpet, and thus reducing the amount of salt consumed by an individual. Our report demonstrates the variation in serving size per crumpet, and yet there is little visual difference from the standard crumpet with the highest salt content to the lowest salt crumpet (Figure 4). If Warburton's Gluten Free Crumpet reduced in size from 73g to the standard 55g, this would result in a 24% reduction in salt per crumpet (0.25g). Careful consideration should be taken to not reduce the portion size too much so that consumers eat more than usual.



**Figure 4. Sainsbury's Taste the Difference Luxury Multiseed Sourdough Crumpet (55g) vs Warburtons Gluten Free Crumpets (73g)**

## INDUSTRY COMMENTS

### **Statement from Federation of Bakers:**

*"The bakery industry has consistently worked hard to reduce salt levels in crumpets, which has been recognised in this report, with 90% of crumpets on the market meeting the salt reduction requirements for 2017 and 68% already meeting the targets set for 2024. These figures indicate a significant industry achievement, especially as some salt is needed in the production of crumpets to ensure they offer both taste and quality."*

### **A spokesperson from Kingsmill:**

*"The sodium in crumpets comes from both the baking powder and added salt; it's important to balance these to get the right amount of rise and this is why different products can have different salt levels. We continue to look for solutions to reduce the total sodium in these products, including using potassium bicarbonate as an alternative to baking powder, but to date we have not been able to find an alternative recipe that gives the right combination of flavour, rise and texture that people expect from a good crumpet. The difference in salt content witnessed in this survey is due to a change in the baking powder used."*

### **A spokesperson from Waitrose:**

*"We work closely with our suppliers on continuous nutritional improvements to our products, making sure any changes do not compromise on taste or quality."*

### **A spokesperson from Asda:**

*"At Asda, we are proud to have been able to achieve reduced salt content over the years by working with our supply base to use non-sodium based raising agents and to reduce added salt. We will continue to work with suppliers on nutritional improvements, including salt reduction, whilst ensuring taste and quality are not compromised."*

## CONCLUSIONS

The objective of the salt reduction programme is to reduce the total salt content of everyday foods, and thus reduce population salt intakes. In doing so, the public can continue buying the foods they enjoy, whilst unknowingly improving their health, including the more socially deprived who are often worst hit.

The food companies in our survey have almost all made good progress achieving the 2017 maximum salt reduction targets for crumpets, and are well underway to meeting the 2024 targets, despite them only just being released in September this year. Unfortunately, there is one notable exception, with the UK's number 1 selling crumpet manufacturer Warburton's<sup>10</sup> failing to make any reductions in salt. Warburton's range of crumpets are by far the saltiest on the market, nearly two thirds higher in salt than Sainsbury's Taste the Difference Luxury Multiseed Sourdough Crumpets, and have remained so since they were last surveyed in 2016. In fact, their gluten free crumpet has increased in salt (Table 3).

The variation in the salt content per 100g demonstrates that many crumpets with the highest levels of salt can achieve and go beyond the salt reduction targets. There are opportunities for reformulation through gradually reducing added salt (sodium chloride) or using a sodium alternative such as potassium in both raising agents and added salt. These are already in operation for many of the crumpets currently on the market, with no reported impact on sales or consumer acceptability.

The most common size per crumpet surveyed was 55g, with consumers usually consuming 2 crumpets (standard sized) at one sitting, demonstrating there is scope to standardise portion sizes.

Consuming 2 of the saltiest 'standard sized' crumpets would provide a third of the maximum recommended daily amount of salt (6g) excluding toppings. As a meal, consumed with protein and a fruit or veg portion, this is appropriate as part of a healthy balanced diet, however if consumed as a snack this could easily push a consumer's daily salt intake to over 6g, considering their meals and other snacks.

Improving the nation's health requires a joint effort from all major players within the food system. Consumers alone cannot make healthier food choices when the food industry is not enabling them to do so.

# RECOMMENDATIONS

Below are recommendations for the government, food industry and consumers to help reduce population salt intake and reduce the salt content in crumpets.

## GOVERNMENT

- Regular monitoring and review of the Government's salt reduction strategy is essential to ensure continued progress in salt reduction
- Mandatory salt reduction targets must be issued by Government in order to ensure that all manufacturers and retailers meet the current and future targets. In the case where manufacturers and retailers fail to meet them, penalties must be issued
- Consumer awareness campaigns need to be put in place to inform the public of the salt content within everyday food

## FOOD INDUSTRY

- Standardise portion sizes of crumpets to the lowest size
- Reductions in added salt are possible, as evidenced in this report. Gradual, unobtrusive reductions in salt across the whole range of food available to the public has the added benefit of not affecting sales or consumer acceptability, while still benefiting public health.
- Explore the use of reduced sodium raising agents such as potassium bicarbonate
- Explore the use of reduced sodium salts
- Meet and go beyond the 2024 maximum salt reduction targets of 1.19g/100g and average salt reduction target of 1.01g/100g for morning goods (powder raised).

## CONSUMERS

- Be mindful of portion sizes, and how quickly salt levels can add up
- Use the FoodSwitch UK App<sup>11</sup> to help identify healthier alternatives so that you can swap to a lower salt choice
- Be minimal with toppings and try to choose those that are less salty and sugary such as:
  - Unsalted butter
  - Scrambled eggs (added protein will keep you fuller for longer)
  - Peanut butter (no added salt/sugar/oil) with sliced banana
  - Low fat cream cheese with sliced apple

## ABOUT US

Action on Salt is a group concerned with salt and its effects on health, supported by 22 expert scientific members. Action on Salt is successfully working to reach a consensus with the food industry and Government over the harmful effects of a high salt diet and bring about a reduction in the amount of salt in processed foods as well as salt added to cooking, and at the table.

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- All retailers, manufacturers and suppliers for their feedback and additional information on their products



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<sup>1</sup> NDNS: assessment of salt intake in adults in England, 2018 to 2019 – report. <https://www.gov.uk/government/statistics/ndns-assessment-of-salt-intake-in-adults-england-2018-to-2019>

<sup>2</sup> World Health Organization. (2020). Salt reduction. <https://www.who.int/news-room/fact-sheets/detail/salt-reduction>

<sup>3</sup> <https://publichealthengland.exposure.co/salt-reduction-programme>

<sup>4</sup> <https://www.express.co.uk/life-style/food/1275306/coronavirus-lockdown-most-popular-food-crumpets-chocolate-gravy>

<sup>5</sup> PHE (2020). Salt reduction targets for 2024.

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<sup>6</sup> PHE (2020). Salt targets 2017: Second progress report.

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<sup>7</sup> Action on Salt surveyed crumpets in 2016 <http://www.actiononsalt.org.uk/news/surveys/2016/crumpets/>

<sup>8</sup> SACN-COT statement on potassium-based sodium replacers: assessment of the health benefits and risks of using potassium-based sodium replacers in foods in the UK [https://www.gov.uk/government/publications/sacn-cot-statements-on-potassium-based-sodium-replacers#:~:text=A%20Joint%20SACN%20DCOT%20\(Committee,sodium%20in%20foods%20with%20potassium.](https://www.gov.uk/government/publications/sacn-cot-statements-on-potassium-based-sodium-replacers#:~:text=A%20Joint%20SACN%20DCOT%20(Committee,sodium%20in%20foods%20with%20potassium.)

<sup>9</sup> Mitchell and Komitopoulou, Agro FOOD Industry Hi Tech 2013 Vol 24 (2)

<sup>10</sup> Warburton's claim to be the UK's number 1 crumpet, based on data from The Nielsen Company; Total Coverage Value Sales, w/e 26.01.19.

<sup>11</sup> <http://www.foodswitch.co.uk>