

Food and drink reformulation to reduce fat, sugar and salt



Food and drink reformulation is one of several tools to support healthier diets. This POSTnote discusses UK reformulation programmes and the evidence for their public health impacts. It describes challenges and opportunities for reformulation and complementary approaches to incentivise healthy food consumption and improve public health.

Background

Most adults in the UK eat too much saturated fat, free sugars, salt and calories; and too little fruit, vegetables and fibre.¹⁻⁵ Diets high in saturated fat, free sugars and salt are associated with increased risk of a range of health conditions including dental caries, cardiovascular disease, type 2 diabetes and some cancers.⁶⁻¹¹

There is consensus among international and national public health stakeholders, including the World Health Organization and UK public health bodies, that reformulation of food and drink products is a useful tool to promote healthier diets and improve public health, as it does not rely on changing people's conscious eating and drinking habits.¹²⁻¹⁶

Reformulation to improve products' nutrition profiles can be done either by increasing levels of certain ingredients (such as vitamins or fibre) or by reducing others (such as free sugar, salt or saturated fat).^{16,17} Additional reasons to reformulate include environmental, ethical or supply chain benefits, as well as reducing cost.^{16,17}

This POSTnote focuses on reformulation to reduce the levels of saturated fats, free sugars and salt.

Overview

- The nutrition profile of food and drink products can be improved by reducing the levels of saturated fat, sugar and salt.
- The UK Government has used voluntary and fiscal approaches to encourage product reformulation.
- It is difficult to measure whether policies encouraging product reformulation have a positive direct impact on public health and the evidence currently available is limited.
- Product quality, industry engagement and consumer preferences present challenges and opportunities for reformulation.
- Improving public health through better diet requires several complementary policy approaches to promote healthy lifestyles.

UK policies to promote reformulation

The UK Government has encouraged reformulation to drive improvements in public health via voluntary and fiscal policy approaches.^{14,18-24} Reformulation programmes in England are supported across the devolved nations (see Box 1). Public Health England (PHE), the Welsh Government, Food Standards Scotland (FSS) and the Food Standards Agency (FSA) in Northern Ireland are responsible for overseeing reformulation programmes. Programmes have targeted different stakeholders, including manufacturers (such as food and drink producers), retailers (such as supermarkets) and the out-of-home sector (OOH, such as restaurants, fast food chains, coffee shops, cinemas, pubs and caterers).^{14,18-24}

The National Food Strategy, an independent review of the UK food environment commissioned by the Government, is committed to examining reformulation policies.^{25,26} Their second report is expected to be finalised in Spring 2021.

The next section discusses current UK voluntary and fiscal approaches to encourage reformulation, how this has changed products and the influence on consumer purchasing behaviours.

Box 1: Programmes in the devolved administrations**Wales**

In 2019 'Healthy weight: healthy Wales' was introduced as a 10-year strategy to prevent and reduce obesity in Wales.²⁷ It included plans to promote reformulation and healthier food alternatives. Priorities were renewed following COVID-19.²⁸

Scotland

As part of the 'Good Food Nation' programme, in 2019 the Scottish Government established a partnership with industry to support small and medium businesses to reduce calories in food and drink.²⁹ Evaluations are not yet available.

As part of 'A healthier future: Scotland's diet and healthy weight delivery plan', Food Standards Scotland (FSS) consulted on an OOH sector calorie reduction strategy.³⁰

They recommended introducing mandatory calorie labelling, encouraging voluntary reformulation and portion size reduction.³⁰ The Scottish Government's plans to review the recommendations have been postponed to Spring 2021.

Northern Ireland

The 'Eating Well Choosing Better' programme was established in 2017 to support small to medium sized food businesses to reduce sugar, salt and calories.³¹

Reformulation work has focused on the bakery and ice-cream sectors, the two key manufacturing industries in Northern Ireland.³² Evaluations are not yet available.

Salt Reduction Programme

High blood pressure is a risk factor for developing cardiovascular disease.³³ Based on the direct association between high salt intake and increased blood pressure, a 2003 report from the UK Scientific Advisory Committee on Nutrition (SACN) recommended average salt intakes in adults to be reduced from 9.5 grams to no more than 6 grams per day.³⁴⁻³⁶

In 2006 the voluntary Salt Reduction Programme was introduced to reduce salt in products contributing the most to people's salt intake.³⁷ Since 2017, it has been part of PHE's reduction and reformulation programme. The programme has set incremental voluntary targets (in 2006, 2009, 2011, 2014 and 2020) for an increasing number of food categories. These categories include meat products, bread and ready meals purchased for in-home consumption; and burgers, pies and pasta purchased out-of-home.²³

Effects of the Salt Reduction Programme on products

Since 2006, salt content in products, such as breakfast cereals and bread, has decreased by up to 50%, although progress between different food categories has varied.^{35,38,39} The latest PHE report confirms mixed progress against salt reduction targets, depending on the products and the sector.⁴⁰ For products allowing direct comparisons, the in-home sector (manufacturers and retailers combined) met 86% of the targets, compared with 58% met by the OOH sector.⁴⁰ For all products from the in-home sector, retailers met over 80% of the average targets, while manufacturers met only 35% of them.⁴⁰

Sugar Reduction Programme

Based on the evidence on the effect of free sugars on total energy intake and the risk of dental caries, the 2015 SACN report on 'Carbohydrates and Health' recommended average intakes not to exceed 5% of total calories in adults and children aged 2 years and above.⁴¹

The Sugar Reduction Programme was introduced in 2016 as part of UK Government's Childhood Obesity Strategy and is overseen by PHE.^{20,42} It aimed to reduce the sugar added to those products that contribute the most to children's intakes by 20% by 2020.⁴² It targets products such as biscuits, cakes, confectionery, yogurts, breakfast cereals, fruit juices and milk-based drinks.⁴² It does not include drinks targeted by the Soft Drinks Industry Levy (see below). It also aims to reduce portion size and shift purchasing to lower-sugar alternatives.⁴²

Effects of the Sugar Reduction Programme on products

The latest PHE report shows mixed progress of the Sugar Reduction Programme between 2015 and 2019.⁴⁴ This varies across product categories and sectors.⁴⁴ For example, sugar levels in products from the OOH sector did not change on average, while levels fell by an average of 3% in products purchased for in-home consumption.⁴⁴ Among these, reductions above 10% were achieved in breakfast cereals and yogurts, while virtually no change was reported in confectionery.⁴⁴ The UK Government is committed to further action if progress is not made.⁴⁵ PHE will continue monitoring the programme and will publish the next progress report in 2021.⁴⁵

Soft Drinks Industry Levy

The Soft Drinks Industry Levy (SDIL) was initially announced in 2016 but implemented in April 2018 in England.^{18,22,46} The SDIL applies a tiered tax on soft drinks with 5 or more grams of sugar per 100 millilitres.⁴⁷ The SDIL targets drinks that have been sweetened with added sugar, and does not include fruit juices or milk products.⁴⁶ It aims to encourage manufacturers to reduce the sugar content of their drinks through voluntary reformulation.⁴⁴

Effects of the SDIL on products

The latest PHE report found that, between 2015 and 2019, the total sugar content in drinks subject to the levy decreased by around 40% for products sold by retailers, manufacturers, and the OOH sector.⁴⁴ Sales of drinks subject to the levy increased on average by 15%.⁴⁴ Therefore, the total amount of sugar purchased through these drinks decreased on average by 36%.⁴⁴ Research suggests that some manufacturers pass on part of the cost of the levy to consumers through price increases, which are not always limited to the drinks targeted by the policy.^{48,49}

Industry and government stakeholders report that direct comparisons between the SDIL and the Sugar Reduction Programme cannot be made, as they include different kinds of products.⁴⁴ They have highlighted that it is technically easier to reduce sugar in drinks than in some food products (where sugar often has a functional role, see below).¹⁶ For example, compared to the progress in foods referred to above, between 2015 and 2019 sugar levels decreased by over 20% in milk-based drinks (which are included in the Sugar Reduction Programme and not in the SDIL).^{44,50}

Calorie Reduction Programme

In 2011 SACN updated the energy intake recommendations for the UK.⁵¹ According to PHE, UK adults consume on average between 200 and 300 excess calories per day.²⁴ Overweight and obese children consume between 140 and 500 extra

calories per day, depending on their age and sex.²⁴ The Calorie Reduction Programme was launched in 2017, as part of the Government's Childhood Obesity Strategy. Its guidelines were published in 2020.^{24,52,53} The programme set voluntary guidelines for different sectors of the food industry, with the aim to reduce the total calories in products contributing significantly to children's and adults' calorie intakes by 2024.²⁴ Generally, a 10% reduction ambition was set for manufacturers and retailers, and a higher one of 20% for the OOH sector.⁵² Products covered by the programme include pizzas, pastry products, sandwiches, crisps and savoury snacks.⁵² It does not include products covered by the Sugar Reduction Programme.⁵² PHE expect the first progress report for the Calorie Reduction Programme to be available in 2022.

Evidence of public health impacts

There is an extensive body of evidence demonstrating that decreasing levels of saturated fat, salt and free sugar in diets improves health outcomes.^{13,14,55–57} The evidence on direct public health benefits of policies encouraging reformulation is more limited and mainly relies on modelling data.^{58–60}

Diet and purchasing behaviours are complex, and assessing the effectiveness of a single dietary policy on measurable health outcomes is challenging.²⁶ For example, comparing sales and purchasing data before and after a fiscal policy has been implemented provides limited information, because purchasing behaviours may not have stayed the same in the absence of the new policy.⁴⁹ Moreover, many policies have only been implemented recently and their effects cannot be observed yet. Finally, several factors other than diet contribute to the risk of developing chronic diseases, including physical activity, age, genetics, the environment and socio-economic factors.^{61–63}

This section focuses on the evidence on the public health impacts from reducing salt, sugar and fat intakes. Data from UK and international reformulation policies to reduce salt, sugar and fats in products is discussed.

Reduction of salt and public health

Reviews based on [randomised controlled trials](#) confirm that salt reduction leads to reductions in blood pressure.^{57,64,65} [Observational studies](#) reported a relationship between reduced salt intake and lower risk of cardiovascular disease and mortality.⁶⁴ A [systematic review](#) on government policies to reduce salt intakes at a population-level suggested that interventions employing more than one strategy (including reformulation) have greater potential to achieve population-wide reductions in salt intake.⁶⁶ However, there is limited evidence to evaluate the direct effect of these policies on health and cardiovascular disease prevention.^{66,67}

Trends in salt consumption between 2005 and 2019

Between 2005 and 2014, the estimated salt intake of adults in England fell by 11%.^{3,68} However, no further changes were found between 2014 and 2018/19.³ According to the latest PHE data, the initial changes were attributable to the time window between 2005/06 and 2008/09, with no further decline since then.³ 69% of UK adults consume on average 40% more salt than the recommended intakes.^{3,69}

A single [observational study](#) analysed trends in salt intakes, blood pressure and deaths from stroke and heart disease between 2003 and 2011 in England.⁷⁰ It suggested that, since the trends similarly declined over time, reduction in salt intakes could have had a role in decreased blood pressure and mortality.⁷⁰ However, reductions in other risk factors (such as cholesterol levels and smoking) were also observed during the same period.⁷⁰ Therefore, no direct link between reduction in salt levels, blood pressure and mortality could be made.^{71,72}

A [modelling](#) study estimated that if declining trends in salt intakes continued as prior to 2011, 6,700–13,000 cardiovascular disease cases could have been prevented between 2011 and 2018 in England.⁷³ The model also estimated that £50–120 million could have been saved in healthcare costs during the same time period.⁷³

Some academics and nutrition charities suggest that the frequent assessments on meeting targets was responsible for the early success of the programme.^{16,73,74} Others argue that initial salt reductions were easier to achieve because some of the salt was present for flavour (see below). The National Institute for Health and Care Excellence (NICE) estimated that achieving the UK Government's dietary guidelines for salt could save £350 million in healthcare costs annually.⁷⁵ In 2018 the Chief Medical Officer (CMO) for England recommended the Government review the use of fiscal disincentives for foods that are high in salt, and to mandate salt targets if they are not met in the future.⁷⁶

Reduction of sugar and public health

The effect of excess sugar on negative health outcomes such as obesity and type 2 diabetes is attributed to the fact that high sugar products are also high in calories and lead to weight gain (see [PN493](#)).^{41,77} Modelling studies suggest a link between reformulation of high sugar products and positive health outcomes.^{78–80} However, limited evidence is currently available to assess the effect of product reformulation on sugar intake and health outcomes, other than a 2–20% decrease in energy intake.⁸¹

Reviews on fiscal sugar policies worldwide found there is not sufficient evidence yet to show conclusively whether taxation of high-sugar foods reduces sugar consumption and leads to positive health benefits.^{82,83} In 2018 the CMO recommended the Government review the use of fiscal disincentives for foods that are high in sugar.⁷⁶ A 2019 modelling study suggested that a 20% price increase in high sugar snacks could reduce consumption, leading to an estimated reduction in obesity cases in the UK by 1.7–3.7% after 1 year, assuming no other changes in purchasing.^{84–86}

Trends in free sugar consumption between 2008 and 2019

Free sugar intakes, as a percentage of total calories, have decreased by 3.8–4.9 percentage points for children and by 2–2.5 percentage points for adults between 2008 and 2019.^{1,2} The impacts of these reductions on health outcomes such as obesity and type 2 diabetes have not yet been directly assessed.⁶⁹ The latest Health Survey for England showed that cases of type 2 diabetes gradually increased in the past decade, while obesity rates remained constant.^{87,88}

A [modelling study](#) showed that if the targets set by the initial design of the Sugar Reduction Programme were achieved, this could result in a reduction in obesity rates in children and adults of 0.6–2.3 percentage points (depending on the age group). The model estimated saving between £250 to £320 million in healthcare costs over 10 years, in part due to a reduction of around 133,000–175,000 cases of type 2 diabetes.⁸⁰

Reduction of saturated fat and public health

Via its effect on plasma cholesterol, reducing intake of saturated fats reduces the risk of cardiovascular disease.⁵⁵ UK adults consume on average up to a third more saturated fats than the recommended daily intakes.^{1,2} A 2019 SACN report on 'Saturated fats and health' recommended the UK Government consider strategies to reduce the average population fat intake to less than 10% of the total calorie intake.⁸⁹ This nutrient recommendation is in line with previous publications by the Committee on Medical Aspects of Food and Nutrition Policy, SACN's predecessor.⁹⁰

Currently, saturated fat is not specifically included in any of the reformulation programmes in the UK. NICE recommends considering supportive legislation to reduce saturated fat levels in products, if necessary.⁹¹ Some charities have been advocating for policies encouraging reformulation of food containing high levels of saturated fats, and others for taxation of high fat food.^{92–94} There is currently not enough evidence to determine whether taxation of highly saturated fat foods would result in lower fat intakes or decreased obesity rates.⁹⁵

Reformulation: challenges and opportunities

There is overall consensus on the health benefits of reducing saturated fats, free sugar and salt.^{13,14,55–57} However, this can present some challenges for industry, given the functional role of these ingredients.⁹⁶ Fats often contribute to texture and other sensory properties, while salt and sugar are often used to enhance taste and to extend shelf life. Sugar also contributes to mouthfeel, texture and bulk of food (see [PN493](#)).⁹⁷

This section describes challenges and opportunities of product reformulation, including product quality, industry engagement and consumer preferences.

Product quality

Considerations about product quality are an important aspect of reformulation. For example, as sugar and salt help prevent microbial growth, reducing their levels could reduce a product's shelf life.^{98,99} Reducing the levels of one single ingredient may not improve products' nutritional quality.^{74,97} For example, recipe changes to reduce sugar content may increase levels of other high calorie ingredients, such as fat, to maintain the original taste, appearance and texture, and meet consumer expectations.⁸⁶ Alternative ingredients (such as natural or chemical agents) can be used to maintain product quality and meet reformulation guidelines, although they can have some limitations (see [PN493](#)).^{16,32,97}

Industry engagement

Industry engagement with reformulation programmes varies.^{40,44} Some stakeholders across the food and drinks sector consider reformulation too costly and time consuming.¹⁰⁰ Lack

of overarching reformulation programmes (including combined targets for salt, sugar and calorie) or presence of different requirements and consumer preferences internationally are among the barriers reported.^{16,101} Other stakeholders across the food and drinks sector support reformulation programmes and set their own internal strategies and targets, such as the Code of Practice by the Out-of-home Food and Drink Alliance.¹⁰² The lack of policies that would ensure equal progress on reformulation across all sectors (i.e. 'a level playing field') are among the barriers reported by these groups.^{16,103}

The opportunities to support industry engagement include promotion of corporate social responsibility and dedicated funding for businesses to make healthier products.^{14,20,104–109} Some industry and charity stakeholders favour funding programmes to support reformulation in small and medium businesses, as currently available in Scotland and Wales.^{110–113}

Consumer preferences

When buying food and drinks, consumers value taste, cost and quality.^{17,26} Manufacturers consider these a priority to meet consumer expectations.^{115–117} To avoid consumers assuming a reduction in taste or quality, some businesses prefer not to publicise reformulation efforts.^{115,116} This is possible because consumers' palates adapt to changes. For example, people do not detect gradual reductions in salt levels, and some evidence suggests that they could also adapt to sugar reductions.^{35,118–121}

There is limited evidence about consumers' views on reformulation. Some research suggests that products with few, recognisable ingredients (rather than chemical agents) are preferred.⁹⁷ Three recent surveys found that the majority of UK adults favour reformulation programmes, although one reported that reformulation was impacting freedom of choice, according to some respondents.^{122–124} As inequalities often underlie unhealthy diets (see [PN522](#) and [PN626](#)), some academics warn that current reformulation policies do not target eating behaviour in relevant socioeconomic groups.^{125–130}

Complementary approaches

Nutrition researchers argue that policies to reduce unhealthy ingredients fail to incentivise healthy food consumption, and complementary healthy eating policies are required in addition to reformulation programmes.^{19,113,131–133} (see [PN522](#)). Some examples of approaches to work alongside reformulation are:

- **Incentivising healthy food**, including lowering the price of fruit and vegetables, and improving school meals, as supported by many charities and academics.^{134–138}
- **Restricting advertising of unhealthy foods**. As part of its Obesity Strategy, the Government conducted a public consultation on this topic in Winter 2020.^{21,139,140}
- **Improving labelling**. A public consultation on voluntary food labelling was closed in Autumn 2020.¹⁴¹
- **Improving public sector procurement of food and drinks**. A public consultation on this topic closed in 2019.¹⁴²
- **Creating a healthy food environment**, as proposed by the Scottish Government's Good Food Nation Bill in 2014.¹⁴³
- **A wider approach to diet and lifestyle changes** targeting issues such as education and physical activity, as recently highlighted in a PHE guidance on tackling obesity.¹⁴⁴

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