



# Scone reformulation

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- Control **calories**
- Reduce **fat**
- Reduce **sugar**
- Reduce **salt**

# Introduction

The Food Standards Agency 'Eating Well, Choosing Better' (EWCB) programme supports small to medium sized businesses to improve the nutritional quality of everyday foods available to Northern Ireland (NI) consumers. This programme aligns with the Government's sugar reduction and wider reformulation programmes overseen by Public Health England. These programmes encourage all sectors of the food industry to reduce sugar and calories in foods which contribute the most to these intakes, and to continue working towards achievement of the salt reduction targets.

Scones are part of the 'morning goods' category of the EWCB programme. A project conducted in 2018 to determine the level of calories, fat, sugar and salt in scones available from coffee shops on the NI high street, found the average scone contained 408kcal (one fifth of the recommended daily calorie intake) and 20g of sugar (equivalent to five sugar cubes) (FSA NI 2018). This reformulation guide has been designed to support scone product development. By understanding the function of core ingredients, bakers will be able to produce a scone where the nutritional composition is:

- **Calorie controlled**  
Calorie reduction: The scope and ambition for action
- **Complies with the Government's Sugar Reduction Programme**  
Sugar reduction: achieving the 20%
- **Complies with the Government's 2017 Salt Targets**  
Salt reduction targets for 2017



## Core scone ingredients

### Flour

All purpose flour is a good choice for scones, as it contains a mid range protein level. Using a flour with 10.5% protein is recommended, as this type of flour contains the right amount of gluten. Gluten is a protein found in wheat flour which gives scones their structure. A lot of gluten is not good for scones, as the gluten adds chew and density. Fluctuation in protein values will have a limited impact on the overall nutritional value of the final scone.

1g of protein contains 17kJ/4kcal

### Buttermilk

In NI buttermilk is a favoured ingredient. The acidity in buttermilk is important for helping leaven scones, which depend on an acid-base reaction to make scones light and fluffy. Buttermilk also adds a distinctive taste to foods and the high acid content helps keep scones moist and tender by breaking down the gluten. Buttermilk contains 5% of a naturally-occurring sugar called lactose.

1g of sugar contains 17kJ/4kcal

### Fat

Fat contributes to the physical properties of the scone and provides flavour. Fat coats the gluten strands and makes the crust and crumb of the finished scone softer. Fats come in a variety of formats. Lards and shortening contain 100% fat, and are high in saturated fat which can raise cholesterol levels and increase the risk of heart disease. Butter contains 80% fat and is high in saturated fat. Margarines have fat values ranging from 60% to 80%, and are lower in saturated fat when compared to butter, lard and shortening. A margarine with 60% fat is recommended.

1g of fat contains 37kJ/9kcal

The salt content of margarine ranges from 0% to 2%. A margarine with a lower salt value is recommended.



## Sugar

The workability of scone dough is not dependent upon sugar. Sugar is added to sweeten the product and to provide crust colour. It only takes a small quantity (5% of the recipe mix) to achieve this.

Each additional gram of added sugar will add 17kJ/4kcal to the mix.

## Raising agent

A raising agent is a chemical leavener, for example baking powder. This is a chemical mixture that releases carbon dioxide when it reacts with moisture, heat and acidity. The carbon dioxide creates small bubbles that rise during baking and create texture. If used in excess, it can impart a metallic taste. Chemical leaveners work best when combined with acidic ingredients, such as buttermilk.

Salt is sodium chloride. Salt is made up of 40% sodium and 60% chloride. It is important to reduce salt intake, as too much salt can lead to high blood pressure and an increased risk of stroke and heart disease. By choosing a low sodium raising agent, the salt value can be reduced by up to 50%.

**Panellists who tasted scones made with a standard sodium raising agent and a low sodium raising agent found no difference in the taste, texture and volume attributes between both types of scones.**

## Minor ingredients

In addition to the core ingredients outlined in this guidance, many bakers also use a range of improving agents, bread improvers and dough improvers as directed by ingredient suppliers. It is important to read the nutritional information on the packaging or product specification to gauge the impact these ingredients will have on the overall nutritional value of the final scone.

**Two options are provided in this guidance to make scones which comply with government guidelines.**

The most effective way to reduce the calorie value is to reduce the size of the scone. 70g scones are acceptable to NI consumers. The nutritional information provided in this guide is based on a 70g and 100g scone.



## Option 1: Classic Plain Scone (not for inclusions)



### Classic Plain Scone Recipe

Flour - 50%

Buttermilk - 37%

Sugar - 5%

Margarine - 5%

Low sodium raising agent - 3%

### Nutritional information for a 70g and 100g classic plain scone.

Typical nutritional information		
	Per 70g scone	Per 100g scone
kJ/kcal	823/195	1176/278
Fat	2.8g	4.0g
of which saturated	0.67g	0.95g
Carbohydrate	37.7g	53.9g
of which sugar	5.53g	7.9g
Protein	5.57g	7.96g
Salt	0.58g	0.83g

Government Target 220-325 kcal per portion

Government Target  $\leq 10\text{g}$  sugar/100g

Government Target  $\leq 1.13\text{g}$  salt/100g

### Luxury scones are achievable using the classic plain scone recipe with no change to the nutritional value.

- Add natural liquid flavourings to the classic scone recipe. Flavourings are easily accessible and the addition of a few millilitres per batch can enhance the taste of scones. Flavourings provide opportunity for variety and can be themed around special calendar events and seasons. Traditional flavours work well, such as maple syrup flavouring, toffee flavouring and coffee flavouring.
- Tea infused scones are both novel and low cost and create consumer interest. Infuse the buttermilk overnight with teabags at a quantity of two per litre and remove teabags before baking. 'Earl Grey' tea flavoured scones taste great. For a fabulous berry flavour infuse the buttermilk overnight with a berry flavoured cold infused teabag.

## Option 2: Base Scone (for adding fruit and inclusions)

Dosage rates for fruit inclusions and luxury inclusions accompany this recipe. The recommended recipe and recommended dosage of additions will ensure the nutritional value of the scones remain within government guidelines.

### Base Scone Recipe

Flour - 52.5%

Buttermilk - 38%

Sugar - 1.5%

Margarine - 5%

Low sodium raising agent - 3%

### Nutritional information for a 70g and 100g base scone.

Typical nutritional information		
	Per 70g scone	Per 100g scone
kJ/kcal	788/187	1127/267
Fat	2.87g	4.1g
of which saturated	0.68g	0.97g
Carbohydrate	35.4g	50.6g
of which sugar	3.36g	4.8g
Protein	5.67g	8.1g
Salt	0.59g	0.84

Government Target 220-325 kcal per portion

Government Target  $\leq 10$ g sugar/100g

Government Target  $\leq 1.13$ g salt/100g



## Fruit scones

Fruit scones are traditionally made by the addition of sultanas or raisins which contain an approximate sugar content of 70g/100g.

It is challenging to make a fruit scone which meets the Government's sugar guidelines ( $\leq 10\text{g}/100\text{g}$ ). To make a fruit scone which will comply with the Government sugar guidelines, use the base scone recipe and add no more than 80g of fruit per 1kg batch.

### Tip: to reduce the sugar value of fruit by 30%.

Fruit soaked overnight in cold water will absorb the water and increase in size and weight. Soaking 1kg of sultanas overnight in 400g of water reduces the sugar content. This results in sultanas containing approximately 50g of sugar per 100g. By doing this, fruit additions can be increased to no more than 120g per 1kg of base scone mix (slightly reduce buttermilk if doing this).

**Scones baked using the base scone recipe with standard sultanas added at a quantity of 80g/1kg were compared to scones baked using the base scone recipe with soaked sultanas added at a quantity of 120g/1kg batch. Panellists who tasted both types of scones found no difference between the products when the level of sweetness was evaluated. When asked to identify the preferred scone, 53% of panellists preferred the scone made using standard sultanas, and 47% preferred the scone made using soaked sultanas.**

## Luxury inclusions

Luxury scones which meet the Government nutritional guidelines are achievable. Luxury scones are generally made with the addition of inclusions. These inclusions are predominately high in sugar and therefore to achieve the Government's sugar guideline of no more than 10g/100g, careful attention should be paid to the nutritional information listed on the inclusion specification sheet or packaging.

By using the base scone recipe and inclusions at the dosage rate listed in the table below, the sugar value will not exceed 10g/100g.

If the inclusion, for example, freeze dried raspberry pieces contains 30g/100g of sugar, then up to 200g per 1kg batch may be added.

### Maximum quantity of inclusions to use with the base scone recipe

Sugar value of inclusion	Maximum weight per 1kg batch
30g/100g	200g
40g/100g	150g
50g/100g	120g
60g/100g	100g
70g/100g	85g
80g/100g	75g

Remember each additional gram of sugar adds 17kJ/4kcal.



## For additional luxury

Base scone recipe  
+ flavouring  
+ inclusions

By combining a natural flavouring with an inclusion, a luxurious scone can be produced which meets the Government's nutritional guidelines.



Base recipe + raspberry flavouring  
+ dried raspberry pieces



Base recipe + maple syrup flavouring +  
toffee pieces

For an elegant finish reduce the added inclusions by 10%, and drizzle the scone sparingly with melted white chocolate.

## Producing consistent scones

To ensure the accuracy of nutritional information, it is essential to produce scones of a consistent weight.

To do this ensure:

- 1) Ingredients are weighed accurately.
- 2) Roll the dough to a consistent depth. The depth of dough can be standardised by using a ruler or an electronic measuring device, such as a caliper.
- 3) Mark scone cutters to avoid confusion.
- 4) Factor in cook loss. On baking, scones will lose 8% to 12% of their original weight. This value is variable depending on the ingredients and oven used.

$$\text{Cook loss} = \frac{\text{Weight of scone dough} - \text{weight of baked scone}}{\text{Weight of scone dough}} \times 100$$





## Scone portion size

The nutritional information provided in this guide is based on 70g and 100g scones. The most effective way to reduce the calorie intake of a scone is to reduce the size of the scone.

For some consumers a 70g scone offering is preferred. However, if your customers prefer larger scones try out some visual perception techniques to make a 70g scone appear larger.

- A trio of mini scones each weighing 25g creates an interesting offering. These provide an opportunity to present a variety of flavours.
- Doughnut scones (100g dough with 30g centre cut out), have the same diameter as a 100g scone and provide an opportunity for novel presentation.

Panellists were asked to visually assess four scones of varying weights presented differently. Panellists were told that the calorie value of each product was similar. They were then asked to select their preferred purchase based only on visual appearance. The results were:

**24%** Trio of 25g scones

**34%** 70g Raspberry & white chocolate doughnut scone

**15%** 70g Raspberry & white chocolate scone

**27%** 100g Plain scone



## Tips for light and fluffy scones



**For a higher rise, keep flour and fat as cold as possible.**



**Gently knead, roll and book fold three times.**



**For a lighter texture, sieve flour.**



**Keep scones as cool as possible until placing in the oven.**



**Avoid overmixing the dough. Too much stirring will toughen the dough.**



**Ensure the oven is fully preheated before baking scones.**



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