



**A pinch
less salt**

We eat too much salt, which is bad for our hearts and blood vessels. But it is hard to avoid salt when 80 percent of it comes from purchased foods. Salt in these products can be reduced – at no cost to the flavour – but producers and supermarkets are dragging their heels.

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When we pop into the supermarket for a pizza or a quiche, few of us realize that we are not just treating ourselves to an easy, tasty meal, but also to a large helping of salt. A 350 gram portion of these foods contains no less than 5 grams of salt, according to the Dutch Heart Foundation's Salt Counter. Whereas we should be consuming no more than 6 grams of salt per day for a healthy cardiovascular system. Nor is it just from ready meals that we get too much salt into our systems. Our staple foods are just as much to blame. A slice of bread with two slices of mature cheese on it? One and a half grams of salt. A piece of sausage with your mashed potato? About two grams. Take a cup of clear soup at the end of the day and you clock up between two and three grams. Hardly surprising, then, that 85 percent of the Dutch population exceed the 6 gram norm every single day. Men by an average of 4 grams and women by an average of 1.5 grams, we learned from *Salt Consumption of Dutch Children and Adults*, a study published in February by the national public health and environment institute RIVM. Children eat too much salt as well. They should not eat more than 5 grams a day, yet boys eat 8.3 and girls 6.8 grams.

It is not easy to avoid all this salt, especially now that we eat more and more ready meals. Who bothers to soak and boil their own beans anymore? Who makes their own pasta sauce from fresh tomatoes? Most people find these ingredients on the supermarket shelves in tins and jars – and unfortunately they contain more than a pinch of salt. This is how more than 80 percent of the total salt intake in the Netherlands comes from purchased foods such as bread, cheese, meat, sauces and soups (see chart). The other 20 percent is added in the kitchen or at the table.

CARDIOVASCULAR DISEASE

And this does us no good at all. Because every gram of salt we eat over and above the 6 gram limit causes our blood pressure to go up by one mmHg, according to

several large epidemiological and experimental studies. 'That link has been conclusively proven', says nutrition expert Marianne Geleijnse of the department of Human Nutrition at Wageningen University, part of Wageningen UR. And every additional mmHg represents a raised risk of cardiovascular disease, stroke and ultimately, death. 'If, for example, the blood pressure of the whole population of the Netherlands were to go down by five mmHg, that would probably reduce the number of deaths from strokes by 14 percent and the number of deaths from heart attacks by 10 percent', says Geleijnse.

Clearly, cutting down on salt could deliver big health benefits in the Netherlands. But how can this be done? After all, consumers really like their salt. So for the food industry and the small and medium-sized food retailers such as bakers, butchers and cheese shops, there is a big risk of losing customers if their products become less salty. And not only does salt add flavour to the product; it often also alters its structure and lengthens its shelf life. So low-salt bread dough is stickier, for example, while low-salt processed meats go off faster. To make up for a lower salt content, we will therefore need new recipes for various products. In the jargon of the industry, they will have to be 'reformulated'. Large companies such as Unilever can do this in their own research laboratories, but small and medium-sized companies do not have such facilities at their disposal. So the ministries of Public Health and of Economic Affairs, Agriculture & Innovation have come to their rescue. Wageningen UR, TNO and the RIVM were asked in 2008 to research the options for small and medium-sized enterprises in an umbrella project called 'Reformulating foods'. Wageningen UR's task is to establish how big a reduction in salt levels the consumer can accept, TNO is looking into the consequences of low salt levels for the production and quality of foods, >

and the RIVM is calculating the health benefits to be gained from reformulation. The focus of the project is on bread, savoury sandwich fillings (processed meats and salad spreads), soup and snacks.

BAKERS, CATERERS AND RETAILERS

The research on bread is already in the final stages. In April the Food & Nutrition Delta (FND) organized a workshop in which the researchers presented their initial results to stakeholders: bakers, caterers and retailers. One of the conclusions was that there is no cause to fear that consumers will buy less bread if it contains less salt. A study led by Anke Janssen of Wageningen UR Food & Biobased Research showed that such a reduction went almost unnoticed by consumers. Janssen, a consumer scientist, invited groups of students for breakfast at the Restaurant of the Future in Wageningen four weeks running. One group was given bread containing standard amounts of salt, another was given low-salt bread and a third was given low-salt bread with added flavourings.

In the second group on low-salt bread, the amount of salt went down a little every week until it had been halved. Only when that point had been reached did the students start to eat less of the bread. 'Laboratory research shows that people can easily taste the difference between salty and less salty food. But in a realistic context such as the Restaurant of the Future, they just go on eating because they are not so focused on what they are eating. And under those conditions it seems you can cut the amount of salt drastically', says Janssen. And that is not all: the taste preferences of the participants on low-salt bread seemed to change over the course of the month. A taste test showed that they actually came to prefer low-salt bread. In this study, which was published in *The Journal of Nutrition* at the end of last year, the amount of salt in the bread flour was reduced from 1.8 to 0.9 percent. This reduction does not pose many technical problems, say TNO business development managers Maurits Burgering and Joost Blankestijn. Together with their colleague Martijn Noort, they researched the texture of the bread in

which salt levels had been reduced by this amount. 'Dough becomes stickier when it contains less salt, and it rises faster and in a less controlled way. The baker loses control over the production process so that the quality of the bread is less consistent', says Burgering. These effects are negligible above a salt level of 1.5 percent, but become quite noticeable below this level. The solution is at hand though, says Burgering. 'It's a question of adding the right enzymes, which can have the same effect on the baking process as salt.' Bakers can also compensate for the loss of flavour by adding yeast extract or replacing the sodium from salt with potassium, says Blankestijn. Potassium is healthier too, as it lowers blood pressure (see box). But potassium salt can only be used to replace 30 percent of the sodium salt, because it is fairly bitter. It is also more expensive. Its use would therefore raise the price of bread somewhat and call for a change in the baking process – although only in minor ways, according to the TNO researchers.

NO OBJECTIONS FROM CONSUMERS

The health benefits of reducing the amount of salt in bread are great. Bread accounts for one quarter of our total salt intake. Halving the amount of salt in bread – from 1.8 to 0.9 percent – would significantly reduce the number of patients and deaths per year, says Joop van Raaij, researcher at the RIVM and overall coordinator of the Reformulating Foods project. Fortunately, bakers have already risen to this challenge, says Van Raaij. In 2009, bakers cut the amount of salt in bread flour by 0.2 percent, from 2.0 to 1.8. And they managed this without any objections from consumers, who did not notice anything. Nor did the salt reduction create many problems for the bakers themselves. The target now is 1.5 percent by 2013. 'Bakers are making a big effort to reduce salt levels', says Van Raaij. 'That was clear when we presented our research results too. I was impressed by their willingness to collaborate. One question they quite understandably asked was: "What can we expect from the other sectors? Surely it doesn't all have to come from our side?"' And indeed, that is not the idea, although you can achieve a lot by reducing the amount of salt in bread. 'If you are aiming to cut down on salt you have to do it across the board in the food sector. Otherwise people don't get used to low-salt products and they will go on adding salt to their food or stop buying low-salt products', says Van Raaij. According to his calculations, if the other food sectors collaborate as well, a reduction in salt intake of 5 grams per person day should be possible. >

**'Legislation on salt
would be the best thing
all round'**

FROM SALT TO CARDIOVASCULAR DISEASE

A high salt intake correlates with high blood pressure and elevated risks of cardiovascular diseases.

Too salty

85 percent of Dutch people eat more than the recommended amount of salt.

Maximum recommended intake:

6

Grams per day



Average intake:

9.9

Grams per day



7.5

Grams per day



Salt and the body

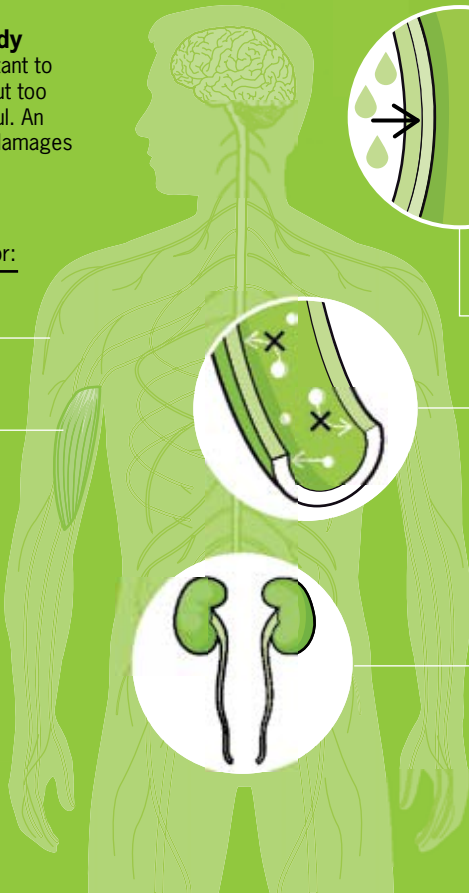
Salt is vitally important to the human body. But too much of it is harmful. An excess of sodium damages the body.

Salt is necessary for:

- Stimulating the nerves
- Contracting the muscles
- Regulating fluid levels
- Transporting nutrients

Risk associated with too much salt:

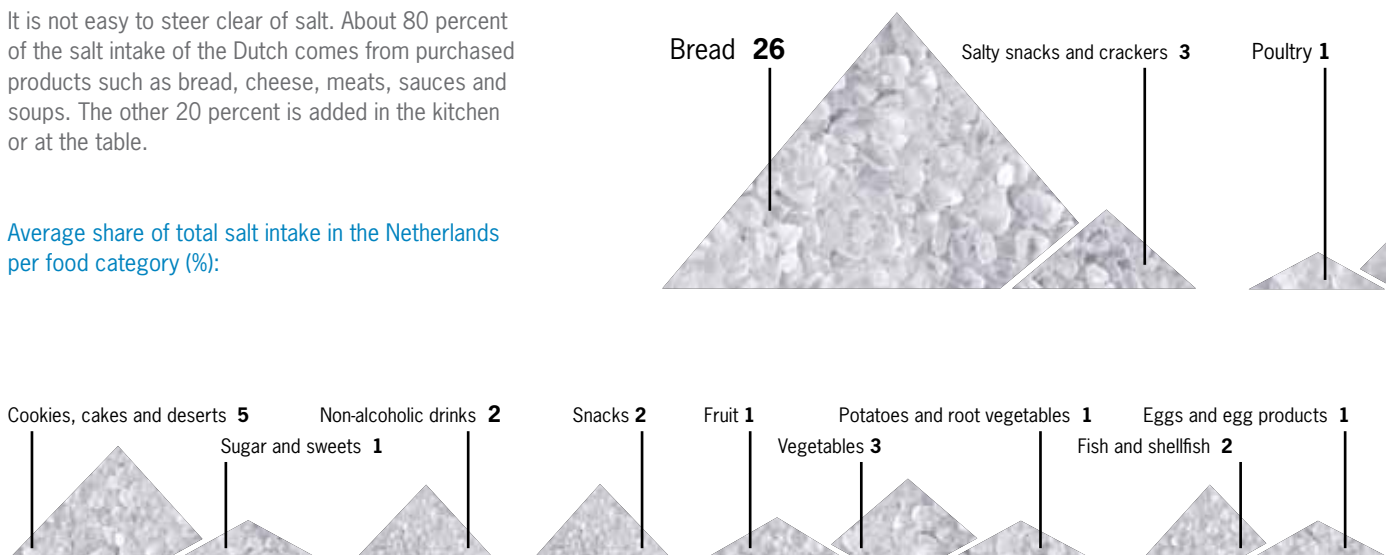
- Pressure on the blood vessels due to fluid retention.
- Inhibiting the release of substances that expand the blood vessels.
- Direct damage to kidneys, by what route is not established.



SOURCES OF SALT

It is not easy to steer clear of salt. About 80 percent of the salt intake of the Dutch comes from purchased products such as bread, cheese, meats, sauces and soups. The other 20 percent is added in the kitchen or at the table.

Average share of total salt intake in the Netherlands per food category (%):



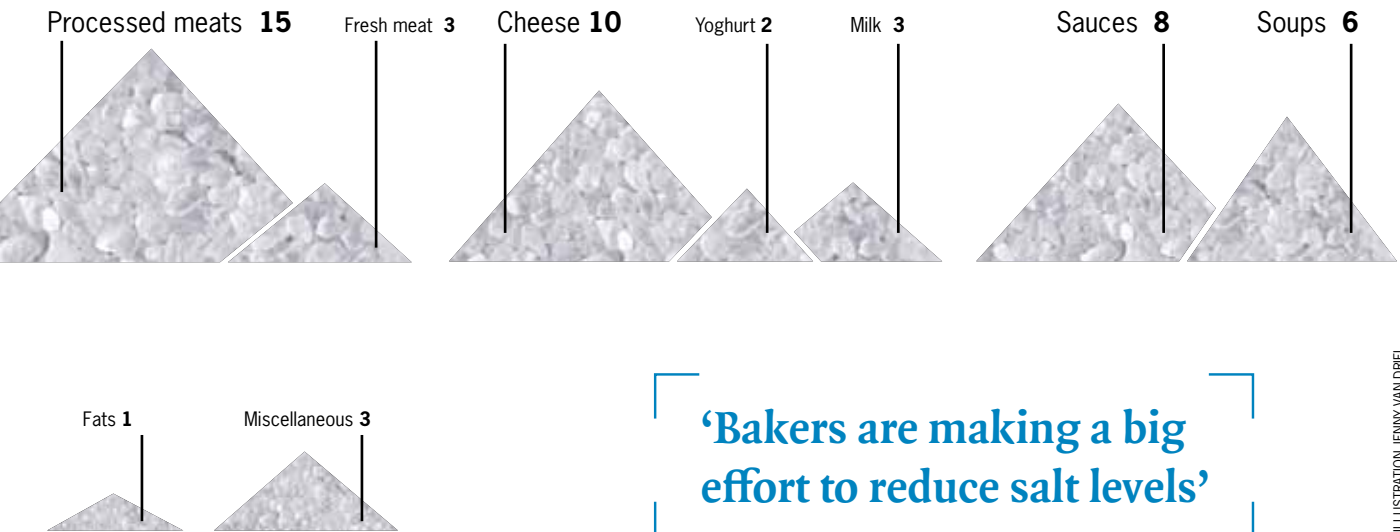
Source: RIVM 2012

So the motto seems to be: full steam ahead, it's all in a good cause. And if the bakers can do it, other food sectors must be able to follow suit, surely? But apparently it is not as easy as that. The salt reduction in bread achieved so far was a relatively easy target, says Van Raaij. Taking it a step further will not be quite so easy and will cost money – at least in the long run. And this will certainly be the case for other food products. Before salt levels in sausages, cheese or soups can be reduced, the production processes have to be changed and other ingredients added, making the products more expensive. The fact is that salt is a very cheap flavour enhancer. So who is going to bear the extra costs? And who is going to make the first move? The negotiations that have gone on between the Federation of Dutch Food Producers (FNLI) and its members illustrate the difficulties. In the first phase of its 'Task Force Salt in Food Products', the federation aimed at a reduction of 12 percent between the end of 2008 and spring 2010. They came close, achieving a 10 percent reduction. In the second phase, the federation initially aimed for 20 to 30 percent but later changed its mind. It has now been agreed that every branch of the food industry will set its own targets for 2015, a move that has infuriated the Consumer Association, which has been campaigning for less salt in Dutch food for years. Minister Schippers of Public Health is none too happy with this result, either. If the food industry does not make enough progress, she threatened in a memo to parliament at the beginning of March, she will order a

study into the feasibility of imposing salt reductions in food through legislation. Unilever does not wish to comment on the idea of legislation at present, but says that it is making every effort to cut down on salt in its products. At the end of April Unilever published details of the progress made on its Sustainable Living Plan. In 2011, salt levels in 80 percent of its global products were reduced to levels that would mean consumers would not eat more than 6 grams of salt per day. For example, salt levels in Conimex dried food mixes went down by about 20 percent in 2011, the salt in Knorr World Dishes was cut by 16 percent and Unilever launched two kinds of wholemeal bread with 40 percent less salt than standard wholemeal bread.

THE NEXT HURDLE

Reaching a consensus in their own ranks is not the only obstacle facing food producers in their efforts to reduce salt. The next hurdle is to get the new and usually slightly more expensive products onto the supermarket shelves. Retailers want to be able to sell their goods as cheaply as possible and certainly do not welcome a price rise caused by a reduction in salt. 'I know several companies that can already deliver methods of reducing salt in food', says Blankestijn of TNO. 'But the retailers are not prepared to foot the bill for them.' In a follow-up project, TNO, Wageningen UR Food & Biobased Research, various partners from the industry and a big retailer will look into ways of clearing this hurdle. How do you persuade all the stakeholders –



‘Bakers are making a big effort to reduce salt levels’

ILLUSTRATION JENNY VANDRIEL

producer, retailer and consumer – to invest in salt reduction? ‘One of the things we want to study is how much leeway you have in the pricing. For example, what is the effect of a salt logo? Perhaps the consumer would be quite prepared to pay a bit more for a low-salt product. If that is the case, it will be easier to convince the retailer too’, says Blankestijn.

According to Hans van Trijp, professor of Marketing and Consumer Behaviour at Wageningen University, part of Wageningen UR, a label stating the amount of salt in a product would be a great idea. It would tell consumers where they stand and make them more aware of the amount of salt in foods. But a salt logo is certainly no guarantee that a product will sell better. ‘Ten years ago we thought a health logo was an effective sales move. But recent Scandinavian research shows that this is not necessarily the case, and that it can sometimes even dent the popularity of a product. Consumers persistently ignore health logos, with the exception of one small and specific group of people who are either already ill or are exceptionally health conscious.’ Most consumers are mainly concerned with short-term gains, says Van Trijp. And they do not include health gains.

LEGISLATION

For this reason you should not leave health to the mercy of the free market, says Van Trijp: you need to legislate for it, at least in part. ‘Companies are out for sales. They try to make their products match the wishes and

SODIUM OR POTASSIUM

Sodium in salt can partially be replaced with potassium. Potassium lowers blood pressure and there is also evidence that it stimulates the release in the blood vessels of nitric oxide, which widens the vessels – in contrast to sodium, which causes them to narrow. Nowadays there are brands on sale which combine sodium and potassium salt.

The department of Human Nutrition at Wageningen University, part of Wageningen UR, is currently conducting a double-blind study of the effects of potassium and sodium salts on the metabolism of people with slightly raised blood pressure. (www.kana.nu).

cravings of their consumers as closely as possible. And since we have a preference – whether inborn or conditioned – for sweetness, saltiness and fattiness, their products tend to be sweet, salty and fatty.’ So Van Trijp would have no objection to maximum salt levels being laid down for foods. ‘I think legislation on salt would be the best thing all round, and having done that you can then let the market do its work.’

But we have not reached this stage yet. For the time being consumers will have to rely on their own common sense, wielding the salt cellar more sparingly and reading product labels more carefully. Foregoing their time-honoured ‘bangers and mash’ in favour of a piece of normally seasoned chicken – which delivers 20 times less salt than a sausage. And is quite tasty, too. ■

This year’s Food4You festival in October will focus on salt.