

Bread with 50% less salt is just as appetizing

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People are just as willing to eat bread containing half the amount of salt as regular bread, according to a study published in the scientific periodical *Journal of Nutrition*. The study was carried out as part of the project Herformuleren Voedingsmiddelen ('Reformulating Food') by a project team from Wageningen UR, TNO and RIVM, which was commissioned by the Dutch Ministries of Economic Affairs, Agriculture & Innovation and Health, Welfare & Sport.

Every weekday over a period of four weeks, 116 test subjects selected their own breakfast from a buffet in the Restaurant of the Future, a research facility run by Wageningen UR Food & Biobased Research. The test subjects were divided into three groups and were not told what was being studied. For two of the three groups, the salt content in the bread was lowered each successive week; for one of these two groups, the reduction in salt was compensated by salt substitutes. The third group

was the control group. For this group, the composition of the bread remained the same for the entire four weeks. This served to examine whether a reduction in salt in bread would result in lowered bread consumption and whether subjects would choose a salty sandwich filling more often.

Up to the end of week three, at which point the salt content in the bread had been reduced by half, the participants in all groups ate equal amounts of bread. Not until week four, when the [salt content](#) in the bread had been reduced by 67% in two of the three groups, did the researchers see a significant change. The group for which the reduction in salt in the bread was not compensated for by salt substitutes ate somewhat less bread. In the other two groups, there was no significant difference. If salt substitutes were added to the bread, the participants continued to eat the same amount of bread, even with 67% less salt. Compared to the control group, the members of the reduced-salt groups ate 0.6-0.7 grams less salt during breakfast. No changes to the choice of savoury filling were demonstrable.

Upon conclusion of the test, it was apparent that most participants had been unaware that there was less salt in the bread. In addition, sensory research in which the normal and reduced-salt breads (without fillings or spreads) were consciously evaluated for 'tastiness' and 'saltiness' demonstrated that clear differences in taste were noticeable. If the varieties of bread were eaten with ham and if the reduced-salt bread contained salt substitutes to compensate for the taste, the reduced-salt bread was judged to be somewhat tastier and saltier. The results of the taste test also demonstrated that the participants who had eaten the reduced-salt bread without salt substitutes during breakfast evaluated this bread as saltier and tastier than the other participants did.

On average we eat about four slices of bread per day, containing an average total of 1.8 grams of salt. Most people ingest much more salt

than the maximum recommended daily allowance of 6 grams. This can result in elevated blood pressure, which in turn can result in more incidences of cardiovascular disease. More than three quarters of the salt eaten by consumers has already been added to products; only 10% is found naturally in food. This means that only a very small amount of salt is added by the consumer. The bakery sector (both industrial and artisanal) can play a crucial part in improving public health. Bread with 50% less salt would make a big difference in the Netherlands, a country where [bread](#) consumption is high.

More information: Bolhuis, Dieuwerke P., et al.. 2011. 'A salt reduction of 50% in bread does not decrease bread consumption or increase sodium intake by the choice of sandwich fillings', in *J Nutrition* 141:1-7 ([doi: 10.3945/jn.111.141366](https://doi.org/10.3945/jn.111.141366)).

Provided by Wageningen University

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