

Parallel Session RTD Line 5 / Consumer Responses to Food Products

Lecture 2: Food technology: use of high protein content and specific fats in meat products to promote satiety

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Abstract

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Dieting and the changing of food habits are major priority areas in combating overweight and obesity. To this end numerous diets are promoted and subjects' responses and compliance are recorded to measure effectiveness in weight control. However, failures to achieve desired weight or return to previous weight levels are frequent results of food intake regimes. Difficulties caused by ingrained, unhealthy food habits and little availability of palatable dieting foods contribute to these failures. In this project an attempt is made to develop food products that make it easier to regulate food intake without demanding too much in terms of changing food habits.

Methods

High protein content of meat products increase feeling of satiety and satiation and, thus, contribute to regulating food intake. Mixed meat products such as sausages contain added fat and typically not considered healthy products. These products are frequently consumed by consumers at risk of problems with overweight and obesity. In our study, Frankfurter type sausages with higher content of protein were first produced to decide the highest level of protein acceptable to consumers. Levels of energy content of protein (PE%) of 20%, 30% and 40% were selected for the sausages and tested for satiating properties. In addition, pork fat (12%) was partly replaced with rape-seed oil (3%). Consumer tests on satiating properties were conducted at two different times with 30 and 40 PE% and 20 and 40 PE% with or without rape-seed oil, respectively. Between 25 and 30 subjects participated in the tests. The subjects tested the products monadically at different days and satiety was measured throughout each test day.

Results

In the first test no significant difference was found in perceived satiety for the 30 or 40 PE% sausages. In addition, the sausages were less liked than a commercial variety. In the second study, changes in the recipe were first conducted to produce a better liked variety. The test showed that sausages with 40 PE% were significantly more satiating than the 20% variety, which is the normal level for Frankfurter type sausages. In addition, an indication of increased satiety was seen after 2 ½ hours and onwards with a 3% rapeseed oil replacement of pork fat.

Conclusion

This study show that intake of high levels of protein increase level of perceived satiety for several hours after consumption of a meal also when consumed in mixed meat products normally associated with unhealthy food habits. Furthermore, of importance for the development of products that may help consumers comply with diets and regulate their food intake is the finding that use of healthier oils in the products seems to increase the satiating effect over a longer period of time. Developing healthier versions of food products normally associated with unhealthy food habits may contribute to better food intake regulation in at-risk consumer segments.