

Analysis of Factors Affecting the Taste of a Food

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ABSTRACT

Saliva in our mouth helps to identify different tastes. It is very important to separate the nature of the sense and perception of the taste. Sense is the act of receiving stimuli by organs. In this research, we first examined the structure of the sense of the taste and its perception mechanism in humans. Then, two quantitative parameters were selected: Food Temperature and the number of the chewing of the food in our mouth. The test was done with the statistical community based on the determined parameters. The statistical community were selected from 1 to 14 years, 15 to 24 years, 25 to 44 years, 45 to 64 years and 65 years and over.

Keywords: mouth, saliva, sense of taste, statistical community

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1 Introduction

Mouth is the first organ of digestive system with tongue and saliva which make the sense of the taste . Saliva dissolves food in the mouth and activates specific taste receptors and the perception of tastes depends on the tongue .

Also about the sense of taste, we can say that the sense of taste is the stimulation of the taste buds by food stimuli. Some people think, perceiving and feeling the taste are the same but it is not correct .

Feeling the taste is act of receiving stimuli by the sensory organs, while perception is the act of recognizing and interpreting sensory information recorded in the brain.

After learning about the mechanism of sense of the taste, we are going to tell about the factors that can affect the taste of our foods. The first thing that is very important about the taste is that it is not just the sense of taste helps to identify the tastes and also the sense of vision and sense of smell help a lot to identify the tastes but we didn't focus on this topic because this topic was largely proven before.

Also some Human characteristic feeling that affect the taste of food are human taste and indoctrination. Human taste is acquired and it may change in different ages.

Indoctrination is a psychological pressure on human beings that can prepare the human mind to accept things that may be unreal; for example, when it is said the pepper is very spicy and consist on it, however if the pepper isn't spicy, after eating you may say it is spicy.

About the different flavors that human can identify we can say there are a lot of tastes but the seven flavors are known completely by scientists, as follows (Fig.1):



Fig.1: picture of where every taste is felt

- 1- Saltiness like salt
- 2- Sourness like sour lemon
- 3- Bitterness like dark chocolate
- 4- Astringent like persimmon
- 5- Sweetness like sugar
- 6- Spiciness like spicy pepper
- 7- Umami like tomato (Umami is Japanese and means “ a pleasant savory taste”)

2 Experiments

First Step: after talking with a nutritionist, an experiment was done to find out more about this problem.

Second Step: we made a diet soup with some tastes like sweetness which was from the carrot, and a very low taste of sourness and saltiness.

Third Step: then our groups were selected according to the statistical groups based on searching on website. Our statistical population was 40 people both in different ages and different genders.

Fourth step: the prepared soup was evaluated by the statistical population based on the determined parameters. The statistical population should give scores between 1 to 4 to their tasting power about each flavor and should write some sentences about tasting different flavors and their general feelings when they eat the soup.

2-1 Determined Parameters

Parameters which were considered in our experiments are as follows:

1- Temperature of the foods:
The prepared soup was tested once hot (80°C) and once cold (30°C) by the statistical population .

2- The count of chews:
The prepared soup was re-tested by the statistical population , once with a low number of chews (Lower than 10 chews) and the other with a high number of chews (More than 10 chews).

2-2 The Meaning of Each Scores

All scores are described as table (1) which is the feeling of the tastes in our statistical population from 1-4 (The prepared soup was used).

Table 1: Scores' Definition

1	Feel the taste less than itself
2	Feel the taste accurate
3	Feel the taste a little more than itself
4	Feel the taste more than itself

2-3 The Statistical Population

According to standard age groups, we selected our statistical population as Table (2).

Table 2: Statistical population

Age groups	Age group of 1 to 14 years (Children)	Age group of 15 to 24 years (Youth)	Age group of 25 to 44 years (Adult)	Age group of 45 to 64 years (Middle-aged)	Age group of 65 years and over (Seniors)
Information					
Number of people in each group	10	5	13	7	5
Number of women in each group	3	2	9	2	3
Number of men in each group	7	3	4	5	2

3 Results

Group (a) age of 1 to 14 years old:

- 1-Taste recognition power is very high in this age group.
- 2-The number of chews was ineffective in detecting tastes.
- 3- The delicate flavors were less pleasant for this group.

Group (b) age of 15 to 24 years old:

- 1-The warming of the food helped to identify the taste and appetite of the food.
- 2- Delicate and mild (slightly spicy) flavors are relatively pleasant for this group.

Group (c) age of 25 to 44 years old:

- 1-Taste recognition in this age group was high in both genders when food was hot.
- 2-The number of chews was ineffective in detecting tastes.
- 3-The men felt the sour taste more and didn't like it, but the woman enjoyed it more when they could taste the sourness and saltiness of the food.

Group (d) age of 45 to 64 years old:

- 1-Taste recognition was very weak in women in this group and much more accurate in men.
- 2-The warming of the food helped to identify the taste and appetite of the food.
- 3-The number of chews was ineffective in detecting tastes.

Group (e) age of 65 and over:

- 1-The taste detection power of this group was very weak.
 - 2-The number of chews was ineffective in detecting tastes.
 - 3- The warming of the food helped us to identify the taste and appetite of the food.
 - 4-There was no change in taste detection power between men and women.
- These results are compared in different groups between Men and Women as shown in Figure (2).

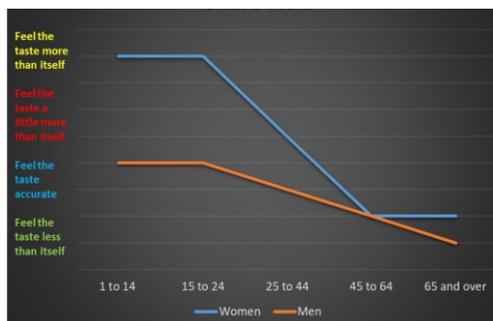


Fig. 2: Results' Diagram

The scores in each group are shown in table (3).

Table 3: Scores in Each Group

Age groups	Scores	1	2	3	4
1 to 14	0 women 1 man	0 women 4 men	0 women 0 men	3 women 2 men	
15 to 24	0 women 0 men	0 women 2 men	0 women 1 man	2 women 0 men	
25 to 44	0 women 3 men	0 women 1 man	6 women 0 men	3 women 0 men	
45 to 64	2 women 4 men	0 women 1 man	0 women 0 men	0 women 0 men	
65 and over	2 women 2 men	1 woman 0 men	0 women 0 men	0 women 0 men	

4 Analysis Results

1- Being a family member had a great impact on recognizing tastes. Because in all age groups in one family, their views were almost the same.

Possible reason: Habit of a fixed family food taste (approximately 90%)

2-Effect of Indoctrination: according to the analysis , we can say that indoctrination has effect on tasting the food. (approximately 8%)

3-In obese people who wanted to lose weight and have a diet, losing weight thoughts had affected on tasting the food taste

5 Conclusion

1-Warming of the food had affected a lot on the tastes of food . When the food was warm, the food was more pleasant for the people.

2- The count of chews had no affect on tasting the food .

Acknowledgments

Thanks to Buca IMSEF organizers and both Mr. Arjmand in Vale school and Dr. Izadi in AYIMI.

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