

To get the full flavor, you need the right temperature

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Can the temperature of the food we eat affect the intensity of its taste? It depends on the taste, according to a new study by Dr. Gary Pickering and colleagues from Brock University in Canada. Their work shows that changes in the temperature of foods and drinks have an effect on the intensity of sour, bitter and astringent (e.g. cranberry juice) tastes but not sweetness. Their work is published online in Springer's *Chemosensory Perception* journal.

We are all familiar with the effect of [temperature](#) on taste - think about starting to eat or drink something while it is warm and finishing when it has cooled, or vice versa. The same food or beverage can taste different depending on its temperature. In addition, in 20-30 percent of the population, heating or cooling small areas of the tongue draws out a [taste sensation](#) without the presence of food or drink. These individuals are known as 'thermal' tasters.

Over three sessions, 74 participants recruited from Brock University and the local community (a combination of 'thermal' tasters, 'super' tasters i.e. people who are particularly sensitive to tastes in general, and 'regular' tasters) tasted sweet, sour, bitter and astringent solutions at both 50C and 350C. They were then asked to rate the intensity of the tastes over a period of time.

For all three types of tasters, temperature influenced the maximum perceived intensity from astringent, bitter and sour solutions, but not from the sweet solutions. Specifically:

- astringency was more intense when the solution was warm, and the intensity of the flavor lasted longer with the warm solution than with the cold one
- [bitterness](#) was more intense with the cold solution and the flavor intensity declined faster with the cold solution than with the warm one
- sourness was more intense with the warm solution and the flavor intensity lasted longer with the warm solution than with the cold one
- and, surprisingly, there was no difference in perceived [sweetness](#) between the cold and warm sugar solutions, but it took longer for the cold solution to reach its maximum flavor intensity.

The authors conclude: "For some individuals, temperature alone can elicit taste sensations. These individuals seem to be more sensitive to tastes in general. What our work shows is that, in addition to these sensitive individuals, the temperature of a specific [taste](#) can affect how intense it tastes."

More information: Bajec MR; Pickering GJ; DeCourville N (2012). Influence of stimulus temperature on orosensory perception and variation with taste phenotype. *Chemosensory Perception*; [DOI 10.1007/s12078-012-9129-5](#)

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