



Media contact: Leslie Stein, 267.519.4707 or [stein@monell.org](mailto:stein@monell.org)

## **INTENSE SWEETS TASTE ESPECIALLY GOOD TO SOME KIDS**

*Individual differences in liking for sweetness based in part on underlying biology*

PHILADELPHIA (February 10, 2010) – New research from the Monell Center reports that children's response to intense sweet taste is related to both a family history of alcoholism and the child's own self-reports of depression.

The findings illustrate how liking for sweets differs among children based on underlying familial and biological factors.

"We know that sweet taste is rewarding to all kids and makes them feel good," said study lead author Julie A. Mennella, PhD, a developmental psychobiologist at Monell. "In addition, certain groups of children may be especially attracted to intense sweetness due to their underlying biology."

Because sweet taste and alcohol activate many of the same reward circuits in the brain, the researchers examined the sweet preferences of children with a genetic predisposition to alcoholism. They also studied the influence of depression, hypothesizing that children with depressive symptoms might have a greater affinity for sweets because sweets make them feel better.

In the study, published online in the journal *Addiction*, 300 children between 5 and 12 years of age tasted five levels of sucrose (table sugar) in water to determine their most preferred level of sweetness. The children also were asked questions to assess the presence of depressive symptoms, while their mothers reported information on family alcohol use.

Nearly half (49 percent) of the children had a family history of alcoholism, based on having a parent, sibling, grandparent, aunt or uncle who had received a diagnosis of alcohol dependence. Approximately one-quarter were classified as exhibiting depressive symptoms.

Liking for intense sweetness was greatest in the 37 children having both a positive family history of alcoholism and also reporting depressive symptoms. The most liked level of sweetness for these children was 24 percent sucrose, which is equivalent to about 14 teaspoons of sugar in a cup of water and more than twice the level of sweetness in a typical cola. This was one third more intense than the sweetness level preferred by the other children, which was 18 percent sucrose.

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Mennella noted that the findings do not necessarily mean that there is a relationship between early sweet preferences and alcoholism later in life. “At this point, we don’t know whether this higher ‘bliss point’ for sweets is a marker for later alcohol use,” she said.

Previous studies have suggested that sweets may help to alleviate depressive symptoms in adults. In a similar vein, sweets are rewarding to children not only because they taste good, but also because they act as analgesics to reduce pain. Because of this, the study also examined the ability of sweet taste to reduce pain in the children by measuring the amount of time they could keep their hand submerged in a tub of cold water (10° C / 50° F) while holding either sucrose or water in their mouth.

The sucrose acted as an effective analgesic for the non-depressed children, who kept their hands in the cold water bath for 36 percent longer when holding sucrose in the mouth.

However, the researchers found that sucrose had no effect on the pain threshold of children reporting depressive symptoms. These children kept their hand in the cold water bath for the same amount of time regardless of whether they had water or sucrose in their mouths.

“It may be that even higher levels of sweetness are needed to make depressed children feel better,” said Mennella.

Citing global initiatives to promote a healthier diet lower in refined sugars, Mennella notes that the current findings highlight the need for additional research to identify whether these clusters of children will require different strategies to help them reduce their intake of sweets.

M. Yanina Pepino, Sara Lehmann-Castor, and Lauren Yourshaw also contributed to the research, which was funded by the National Institute on Alcohol Abuse and Alcoholism and the National Institute of Child Health and Human Development.

The Monell Chemical Senses Center is an independent nonprofit basic research institute based in Philadelphia, Pennsylvania. Monell advances scientific understanding of the mechanisms and functions of taste and smell to benefit human health and well-being. Using an interdisciplinary approach, scientists collaborate in the programmatic areas of sensation and perception; neuroscience and molecular biology; environmental and occupational health; nutrition and appetite; health and well-being; development, aging and regeneration; and chemical ecology and communication. For more information about Monell, visit [www.monell.org](http://www.monell.org).

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