



Press Release

Contact: Leslie Stein
Monell Center
215.898.4982
media@monell.org

A SPOONFUL OF SUGAR MAKES SOME KIDS FEEL GOOD

Sweet taste's ability to reduce pain is related to both sweet liking and body weight

PHILADELPHIA (December 15, 2005) -- It's no secret that children like sweet-tasting foods and beverages. It's also known that sweet taste acts as an analgesic in children, reducing their perception of pain.

Now researchers at the Monell Chemical Senses Center report in the current issue of the journal *Pain* that the analgesic efficacy of sweet taste is influenced both by how much a child likes sweet taste and by the child's weight status.

"Some children like sweets not just because they taste good, but also because sweets make them feel good," explains senior author Julie Mennella, Ph.D. "This study further reveals that for children, sweetness' effectiveness as an analgesic is related to liking for sweet taste and also to weight status."

In the study, sucrose preferences were determined for 198 children, ranging in age from 5 to 10 years, and their mothers. Children as a group preferred higher levels of sweetness than the adults, selecting a favorite sweetness concentration equivalent to adding 11 teaspoons of sugar to an 8-ounce glass of water. For comparison, an 8-ounce serving of soda contains approximately 6 teaspoons of sugar.

There were individual differences across both age groups, with approximately half of the children and one quarter of mothers preferring sucrose concentrations of 24 percent (14 teaspoons per 8-ounce water) or greater.

To evaluate response to pain, the researchers used a classical model known as the cold pressor test, measuring how long subjects were able to keep their hands in a cold water bath maintained at 50 degrees F (10 C). The cold pressor test was repeated twice, once with the subject holding a 24 percent sucrose solution in the mouth and again with water in the mouth.

In normal weight children, palliative properties of the sweet sucrose taste were related to the children's sweet preferences: sucrose reduced the experience of pain in children with higher sweet taste preferences, but not in children who preferred lower concentrations of sweetness.

However, when the child's weight status was taken into account, sucrose's effectiveness as an analgesic was blunted in overweight and at-risk-for-overweight children who preferred higher levels of sweetness.

Mennella comments, "This intriguing finding may reflect differences in brain chemistry systems. Additional studies clearly are needed to evaluate how dietary habits and individual differences contribute to preference for sweet taste in children and its physiological consequences."

Unlike for children, sweet taste was not an effective analgesic for mothers, regardless of their preferred sweetness level.

"Even women who preferred high levels of sweetness similar to that selected by the majority of children did not evidence an analgesic response to sucrose. Thus, the lack of an analgesic response to sucrose during adulthood apparently is not due to the lowered sucrose preference observed in adults overall," states lead author Yanina Pepino, Ph.D.

"Children and adults differ with regard to a wide variety of physiological and endocrine differences, and future studies should identify variables that promote or impede the ability of sweet taste to act as an analgesic in both children and adults."

###

The Monell Chemical Senses Center is an independent nonprofit basic research institute based in Philadelphia, Pennsylvania. For 35 years, Monell has been the nation's leading research center focused on understanding the senses of smell, taste and chemical irritation: how they function and affect lives from before birth through old age. Using a multidisciplinary approach, scientists collaborate in the areas of: sensation and perception, neuroscience and molecular biology, environmental and occupational health, nutrition and appetite, health and well being, and chemical ecology and communication. For more information about Monell, please visit www.monell.org.

Citation: Pepino, M.Y. and J.A. Mennella. Sucrose-induced analgesia is related to sweet preferences in children but not adults. *Pain*, 2005, 119, 210-218.

Funding: National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health

Contact: Leslie Stein, media@monell.org, 215.898.4982