



NEWS RELEASE

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March 2003

Why We Are What We Eat: New Links Between Biology and Food Choices

“Tell me what you eat, and I shall tell you what you are,” wrote French gastronome Brillat-Savarin, in his 19th century tome, *The Physiology of Taste*. In the same spirit, scientists reported today at the American Association for the Advancement of Science (AAAS) Annual Meeting that our biology plays a major role in determining our food choices.

While specific food cravings are generally thought to be the product of temporary biological changes, such as hormonal fluctuations, our bodies may determine what we eat in other ways as well. Biological differences in our sense of taste have such an influence on our diets that they may help determine which diseases we might be susceptible to, according new research by Linda Bartoshuk of Yale University.

A Matter of Taste

The “neon taste world” of people whom Dr. Bartoshuk calls “supertasters” is roughly three times as intense as the “pastel world” of the nontasters. That’s because the tongues of supertasters have a higher concentration of taste bud-containing structures than the tongues of less taste-sensitive groups do.

“The ability to taste bitter substances has always been associated with poison detection, but now we have found all these health associations,” Bartoshuk said. “We know people’s whole diets are different, based on their taste sensitivity.”

Because taste buds also detect the sensations of touch and pain, supertasters are also the most sensitive to the heat of chilis, for example, and the feel of fat. Women are more likely to be supertasters than men are. “Supertasters are picky eaters. They taste bitterness in food that other people don’t notice. For some, the food world is just slashing bright and they opt out from many food choices,” Bartoshuk said.

Supertasters also tend to avoid very sweet, high fat foods, according to Bartoshuk, but are also generally averse to vegetables, which taste unpleasantly bitter to them. As a group, supertasters tend to be thinner and healthier, but their veggie aversion may lead to a higher risk of certain cancers, Bartoshuk has found. Studying the colonoscopies of a group of older men, Bartoshuk and Marc Basson at Wayne State University School of Medicine found a correlation between the number of polyps and the ability to taste bitterness. The men with more polyps reported eating the fewest vegetables and were heavier, both risk factors for colon cancer.

Bartoshuk and her colleagues have also found a correlation between weight and a history of ear infections that seems to be related to taste sensitivity. She thinks this relationship may be related to the ability to appreciate the sensation of eating fat, which can be increased by upper respiratory infections. The men in her study that reported histories of ear infections were heavier, which Bartoshuk thinks may be related connections between taste and the perception of fat. Taste and fat stimulate different nerves that

normally inhibit one another. When the taste system is damaged, fat produces more intense sensations. In males this tends to increase their liking for and intake of high fat foods, leading to increases in weight, according to Bartoshuk. Bartoshuk mentioned that her colleague, Valerie Duffy, has found that supertasters are at less risk for cardiovascular disease, likely because of their lower fat intake.

Source: American Association for the Advancement of Science. For more information on the AAAS, see the web site, www.aaas.org. Additional news from the AAAS Annual Meeting may be found online at www.eurekalert.org. AAAS is the world's largest general scientific society, dedicated to "*Advancing Science • Serving Society.*"