

Scientific Kitchen: Creating Newfangled Ice Cream



(<http://www.worldsciencefestival.com/wp-content/uploads/2015/05/icecream1.jpg>)

Reinventing the ice cream wheel when it's not broken is a business as tricky as mixing metaphors, but when done tastefully, it's just the kind of mashup people savor or perhaps even clamor for, and newfangled ice cream was just what the people gathered at **“Scientific Kitchen: We All Scream for (Stretchy) Ice Cream”** were waiting for.

As two mixing bowls whirred away, NYU **chemist Kent Kirshenbaum** and former White House **pastry chef Bill Yosses** began their discussion of reinterpreting ice cream to make it stretchy, the science required for the transformation, and important takeaways about the mix of chemistry, food, and health.

“Desserts,” said Yosses, “are a great sort of portal to look into eating healthy and science.”

Yes, you read that right. It turns out, that stretchy ice cream can be a little healthier than regular ice cream because of dietary fiber and the long-chain polymers of the chemicals involved, but before anyone started worrying

about chemicals in food, Kirshenbaum set people straight.



(<http://www.worldsciencefestival.com/wp-content/uploads/2015/05/icecream3.jpg>)“All of our food consists of chemicals,” Kirshenbaum said, bristling at the idea put forth by some that we should keep chemicals out of our food and keep chemists away from our cooking. A lack of basic scientific understanding, he went on to say, has led some people in the media to put forth misleading information about what is and what is not in food.

If Kirshenbaum’s talk of the pitfalls of popular yet woefully misinformed media entities showed a craving for a more scientifically informed public, Yosses was there to help inform on the science front, and he encouraged everyone to try this simple experiment at home.

“When you cook red cabbage, the water that you produce is navy blue in color,” said Yosses, kind of like litmus paper for the pH scale. “So if you took that blue water straight off the cabbage and ... poured vinegar into it, it turns red ... as it turns into the acidic part of the pH scale. And if you

want to take it back into the alkalinity scale, you could add baking soda. So it's a very visual way for kids to understand the pH scale, what is alkalinity, what is acidity.”

The next science lesson came from Kirshenbaum who explained the physics of ice cream by way of a video produced by former World Science Festival participant César Vega explaining ice cream's three-phase system of ice, air, and water.



Finally, Kirshenbaum and Yosses turned to how they'd make ice cream with some stretch to it.

First there were the different phases of matter involved in ice cream—solids in the form of crystals and fats and ice particles, liquids in the form of the unfrozen water molecules, and air pulled into mix through the process of beating. They also need to know how the molecules will interact with water and how to control the viscosity or the resistance to flow (thickness).

Starting with the common ingredients of milk, sugar, and flour, they looked to Turkey, where a similar concoction has been made before, and added two key ingredients: salep, which, Kirshenbaum told the crowd, translates as “fox testicle,” has been used in cooking for centuries, comes from the tubers of orchids native to the Anatolian mountains, and will help give it some gumminess, and the tree resin mastic for flavoring. After the long mixing process (to beat air into the mix) they'd bring down the temperature, freeze it, and the resulting creation would be highly viscous. The freezing would come by way of a healthy dose of liquid nitrogen.



After the science lesson and ice cream making, the room got to try the stretchy ice cream with a piece of pecan or raspberry pie.

One woman, when asked what she thought of it, tactfully said with a smile that the consistency is interesting, and that lesson had been fascinating. As for the taste? “Well, it isn’t ice cream.”

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