Cracking A Peanut's Deadly Secrets

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(CBS) In a small lab on the outskirts of New Orleans, the research is sizzling.

Bio-chemist Soheila Maleki spends her days looking for clues by boiling, roasting and analyzing DNA from the world's 14,000 varieties of peanuts.

Among the things she's trying to discover is why so many people develop peanut allergies. Roasting is the main culprit.

"We found that roasting enhances the allergenic properties of peanuts," says Malecki, a peanut researcher for the USDA.

An entire lab is dedicated to the project, funded by anxious peanut farmers and the federal government.

Why is so much attention being paid to a simple food many Americans grew up on?

Because, as CBS News Correspondent Elizabeth Kaledin reports, peanuts are everywhere in the food supply today and allergies to them, which are often deadly, are on the rise and plaguing more than one and a half million Americans.

Many of them are children, like 8-year-old Jayna Nelson.

At school, Jayna eats at an allergy-free table. No one with peanuts or peanut by-products is allowed to join her.

If there was peanut butter on the table and she touched the table, she would have a reaction without actually ingesting it.

Everywhere she goes, she carries an emergency medical kit with her. Her mother Pam says the family lives in a state of constant vigilance.

"It's an all-day, everyday responsibility," says her mother, Pamela Nelson.

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"We have modified the peanut protein so we actually use it to try to desensitize or prevent them," says Sampson. Sampson and his colleagues created peanut allergies in mice, then get rid of the peanut allergy specifically," Sampson says.

"When we look at the statistics about deaths from food anaphylaxis, by far the single largest cause of that is peanut allergy," says Dr. Hugh Sampson, of Mt. Sinai Hospital.

Because of the risks, and rise in cases, Sampson is developing a vaccine to prevent them.

"We have modified the peanut protein so we actually use it to try to desensitize or get rid of the peanut allergy specifically," Sampson says.

To test it, Sampson and his colleagues created peanut allergies in mice, then gave them doses of the new vaccine.

The mice that did not receive the vaccine experienced trouble breathing, while
those that did were fine.

Sampson is hoping to get FDA approval to test the vaccine in people soon.

Back in the lab, meanwhile, Malecki has also discovered that not all peanuts are created equal.

"We found a peanut variety that is lacking one of the allergens, completely lacking one of the allergens, which we're really excited about," she says.

Her finding raises the possibility that one day peanuts could be bred to be hypoallergenic.

An allergy-free nut and a peanut vaccine are years away, but both offer hope to children like Jayna, who can never let down their guard.

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