

Norco student explores effects of smoking, diabetes

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By **JERRY SOIFER**
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NORCO - Shay Edwards, 16, starts his junior year at Norco High School next week. On Wednesday, he seemed like a college graduate working for a doctorate with the presentation he gave to 17 men and women at the Norco Kiwanis Club.

Shay described an experiment about the effectiveness of a thermal imaging device measuring the vascular changes caused by smoking and diabetes.

Shay said he hopes the device will help doctors detect preclinical stages of circulatory problems and disease before they become more serious.

"It's always rewarding to be able to share information with others in the community," Shay said.

Brian Oulman, director of economic development in Norco, said of Shay, "He's probably one in 1,000 that could conceptualize the study he did."

Shay, who has a 4.5 grade-point average, told Kiwanis members at the breakfast meeting that the idea for the experiment originated when he saw a thermal imaging device at an open house at the Naval Surface Warfare Center Corona Division in Norco five years ago. Shay had already made a name with scientists at the Navy base who had followed his progress.

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Norco High School student Shay Edwards gives a talk Wednesday to the Norco Kiwanis Club.

"When Shay first approached us with his plasma research project a couple of years ago, our engineers said he would have to overcome significant challenges," said Ed Travato, a physicist at the base. "He not only overcame them, he made it look easy."

John Fishell, technical director at the base, said, "Through our years of reaching out to thousands of area science students, Shay has definitely stood out as a bright and inquisitive mind. His persistence to dig in and go further in his scientific inquiry are very impressive and encouraging."

Shay recruited 11 diabetics, 13 smokers and 36 people with no known health issues for his experiment over the past two years. Most of the people involved were from the Corona-Norco area. The diabetics were 50-59 years old and had the chronic disease for two to five years before the experiment. The smokers, ages 41 to 49, averaged 1 ½ packs a day.

In the experiment, each person dipped their left hand in water, which was at 62 degrees Fahrenheit. Edwards used the thermal imaging device he borrowed from Southern California Edison to record the reaction of the blood vessels in the right hand to the body being cooled by the other hand in the water.

The diabetics' hands did not cool down because the disease can impair the reaction of the circulatory system to environmental changes, Shay said.

The reaction of the smokers was better than that of the diabetics, but they had irregular hand patterns because smoking constricted their blood vessels, Shay said.

For the control group as a whole, right-hand temperatures cooled because they didn't have any circulatory issues.

During his talk, Shay projected the images he took onto a screen. His project took second place in the state science fair last year. He's been to the state science fair for five years and placed second the last two. Last month, he attended a biological engineering symposium at the Massachusetts Institute of Technology in Cambridge, Mass.