

Can diet prevent cancer?

January 11 2016, by Jim Ducibella

Almost everyone makes New Year's resolutions.

Save more [money](#). Consume fewer calories. Exercise more. Exercise, period. Eat a healthy diet.

That last one, Joanne Watters Elena '97 said in a recent guest lecture at William & Mary, could save you from [cancer](#).

Maybe.

"It's all messy," Elena, who majored in Biology at W&M, told Kinesiology Professor Ken Kambis' Science of Nutrition class prior to the holiday break. "How do you decide what's good and what's bad?"

Elena is an epidemiologist and program director at the National Cancer Institute (NCI), which is part of the National Institutes of Health (NIH). She received her master's degree from Johns Hopkins and her Ph.D. from the University of North Carolina - Chapel Hill. At NCI, she is responsible for developing, managing and promoting research grants focused on diet and lifestyle factors that influence cancer progression, recurrence and survival.

Cancer, she told the class, starts with something in one's DNA that's replicated wrong. It is an unregulated growth, "bad cells that just don't get the message that they need to die. You get the flu; your immune system knocks it off. Not cancer."

According to Elena, a man's lifetime risk for getting cancer: one in three, primarily prostate. A woman's risk is one in four.

How much does diet affect cancer risk? Newspaper articles normally report that 35 percent of cancers can be prevented by a healthy diet. But Elena said that figure is based on a range of 10 to 70 percent.

"To me, ten percent sounds like a fairly minimal effect; 70 percent being prevented by diet sounds like we should be throwing all of our dollars to doing this," she said. "It's difficult to know where the truth is; how realistic these estimates are.

"I don't think that we're there yet. But it gives us a good idea. What I take from these numbers is that diet is important and likely contributes to the risk of developing some cancers."

Several factors make analyzing which foods minimize cancer risk devilishly difficult. Say you put someone on a certain diet; if they get cancer – still a rare event, Elena said – it will take up to 20 years from the first errant cell to the cancer being detected. Investigators have to apply for a research grant, get funded (usually at five-year increments) and then wait to see if the cancer appears. It's all very expensive and time intensive.

"And that's the best way," she said.

Some studies Elena has worked with have been going on for almost 40 years. Multiple principle investigators have been involved. Investigators retire. Investigators die.

"How long can you follow something?" she asked. "How long can we wait for this important information?"

On the surface, at least, another way is easier: Find people with cancer, and ask them what they ate.

"You can imagine the person who has cancer is going to be wracking his or her brain a lot more trying to figure out how it happened than someone who doesn't have cancer," Elena said.

But, she added, what if a person with cancer had a specific idea? For example, maybe he or she thought it had been caused by the amount of sugar they ate.

"You might report that you ate less than you really did to make yourself feel better," she said, "or you might beat yourself up and say you ate more than you really did and tell yourself that you did this to yourself. Either way, there's a bias, and in science we're trying to get to the truth.

"No study ever gets the full truth, but that's the problem with asking people backwards. You might not get great estimates."

That's one reason why one study may conclude that eggs are good for you, while another concludes just the opposite. The same goes for wine.

"It's not exciting to put the message out that we should eat a [diet](#) rich in fruits and vegetables and whole grains, moderate in red meat, minimize alcohol intake and [exercise](#) every day," Elena said. "That's too much for a CNN ticker, yet the same information I heard when I was in grad school is out there now. It just isn't news."

In a world filled with the inexplicable – why do some smokers get cancer and others don't? – this is what Elena said she knows:

- Cancer is a rising threat. Cancer is the second most common cause of death in the U.S., exceeded only by heart disease.

- More people are surviving and living longer with cancer. There are almost 15 million cancer survivors in the U.S. and 21 percent of cancer survivors are living 20 years longer or more.
- Too many people are still affected by cancer and identifying ways to reduce this number and improve cancer outcomes is paramount.

Medical science is getting better at treating cancer, Elena said, but practitioners still don't fully understand why it occurs in one person and not another. However, she is convinced that a [healthy diet](#) just might make a difference in the war on cancer.

Provided by The College of William & Mary

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