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### Video 14 Causation

1. People who own more cars tend to live longer than people who own fewer cars. Why is this relationship not evidence that buying more cars increases life expectancy?

The lurking variable in this situation is the wealth of the person and not the cars themselves. Those with more money have more options in terms of healthy food, healthy lifestyles and better healthcare.

2. Heavy smokers are about 20 times more likely to get lung cancer than nonsmokers. Why isn't this link by itself good evidence that smoking causes lung cancer?

There are still questions about the DNA of the smokers. Also the place of residence might be a factor if it is a heavily polluted area.

3. What is the difference between a retrospective study and a prospective study? A retrospective study is a study where the behaviors, actions and results have already taken place. Therefore the researchers must work backwards to find the information such as the habits of smokers in this particular case. A prospective study is one where the researchers can study the behaviors, actions and results as they happen. In this particular case, a prospective study has the researchers study healthy smokers and non smokers and collect data over a period of time.

4. Why is a prospective study that compares a group of smokers with a similar group of nonsmokers not an experiment? It is not an experiment because the researchers can not make people smoke for the purpose of research.

5. Why do experiments with animals add to the evidence that smoking causes cancer in humans?

According to Ersnt Wynder, MD, since the experiments were done on living animal tissue, it shows a strong correlation to lung cancer in humans.