

## 3.24: Introduction to Association vs Causation

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What you'll learn to do: Distinguish between association and causation. Identify lurking variables that may explain an observed relationship.



Just because two variables are associated does not mean that one variable causes changes in the other! For example, swimsuit sales and beach toy sales are likely associated (as swimsuit sales go up, one might speculate that beach toy sales will also go up), but it's not necessarily the case that swimsuit sales cause beach toy sales.

In order to establish evidence of causation, a statistical study with rigorous design considerations is needed and the study results should be repeatable. We briefly discuss design considerations and appropriate conclusions that may be drawn.

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