# Type of Observational Studies.

The goal of this activity is to use the flowchart shown to correctly classify observational studies as retrospective, cross-sectional, or prospective.

In an observational study, subjects are observed and measured, but they are not *modified* in any way.

In contrast, an *experiment* involves somehow modifying the subjects in order to study the effects of the modification.

Now, it is time to test your knowledge.

For an observational study, you need to consider *WHEN* the observations are made: a *past period* of time at *one point* in time or *forward* in time.

If the observations focus on a *past period of time*, you will be conducting a retrospective (or case-control study) in which you will be going back in time to collect data over some past period.

An example of a retrospective study is an analysis of car crash fatalities from the years 2000 to 2020.

If the observations focus on one point in time, then you will be conducting a cross-sectional study.

An example of a cross-sectional study is an opinion survey conducted this week.

If the observations focus on a future period of time, then you will be conducting a prospective study, which is also called a longitudinal or cohort study.

In this type of study, you observe groups sharing common factors, such as one group of smokers and another group of non-smokers.

An example of a prospective study is one based on adverse reactions from a new COVID-19 vaccine that has just been approved.

The adverse reactions will be studied in the future after the vaccine has been in use.

Now, it is time to test your knowledge.

Let’s try another one.

To summarize, in an observational study, subjects are observed and measured, but they are not *modified* in any way.

Based on when the observations are made, the study is considered to be one of the following:

A Retrospective Study for data collected from a past period of time A Cross-Sectional Study for data collected at one point in time A Prospective Study for data to be collected in a future period of time.

Congratulations, you have mastered an important concept of Statistics!

There, wasn’t time travel fun?