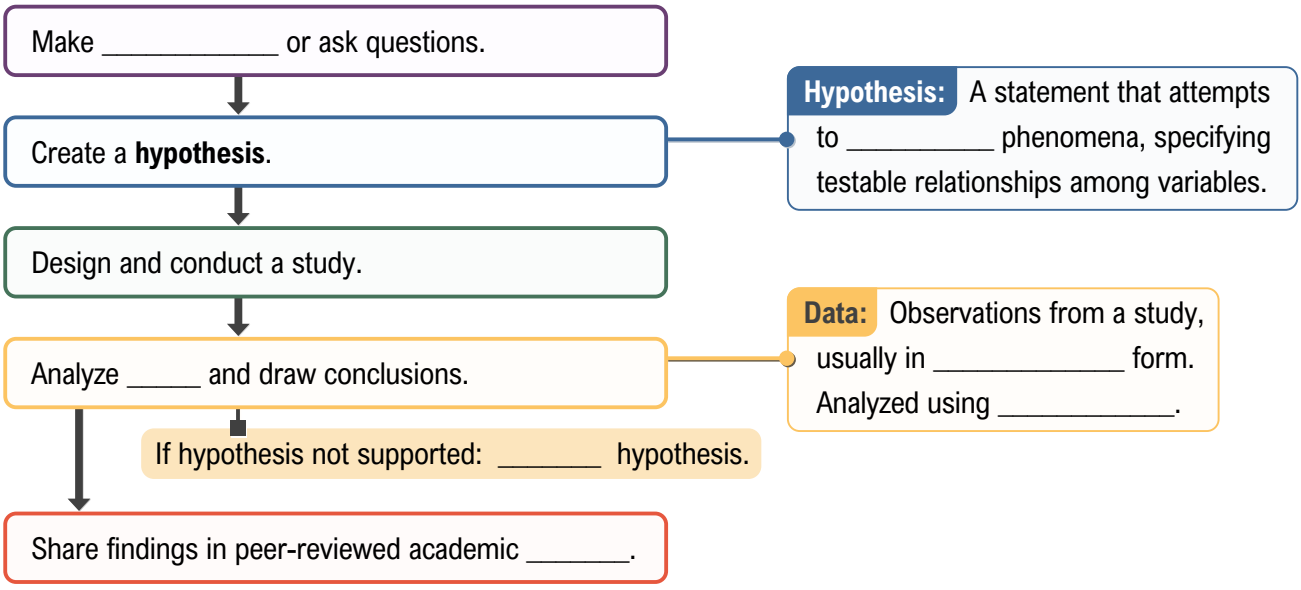
TOPIC: NUTRITION AS A SCIENCE

Scientific Method

◆ To study questions in nutrition, scientists use the scientific method:



◆ Many studies reaching the same result needed to reach _____.

EXAMPLE

Place the steps in the box in order according to the scientific method.

Make observations → ☐ → ☐ → ☐ → Publish findings in a journal

a) Analyze data & draw conclusions.
b) Create a hypothesis.
c) Design and conduct a study.

How should a researcher respond if their hypothesis is not supported?

_____

PRACTICE

According to the scientific method, what should one do after analyzing their data and drawing conclusions?

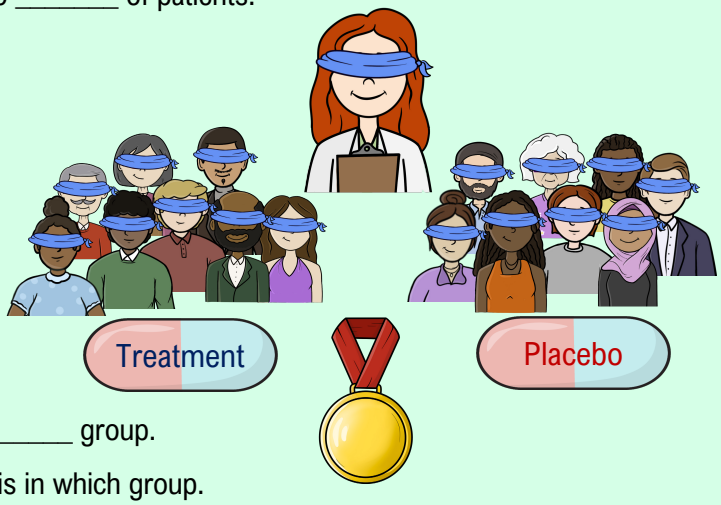
a) Create a hypothesis.
b) Publish in a peer-reviewed journal.
c) Design a study.
d) Post their findings online.

TOPIC: NUTRITION AS A SCIENCE

Clinical Trials

Clinical Trials

- _____ **studies:** intervention/treatment given to _____ of patients.
  - Can establish _____ relationships.
  - ***Experimental group:*** receives _____.
  - ***Control group:*** does ____ receive treatment.
    - May receive _____ → no therapeutic effect.
    - Groups should be *randomized*.



  - **Single-blind:** participants don't know if in _____ group.
  - **Double-blind:** researchers _____ don't know who is in which group.
- Randomized, double-blind, placebo-controlled studies considered _____ standard.

PRACTICE

What does it mean to say that a study is "single-blind"?

a) In a single blind study, the researcher analyzing the data does not know which group participants are in.

b) In a single blind study, participants are assigned to groups "blindly", in other words, randomly.

c) In a single blind study, the person administering treatment does not know if participants are receiving the placebo or actual treatment.

d) In a single blind study, the participants do not know whether they are in the experimental or control group.

TOPIC: NUTRITION AS A SCIENCE

Laboratory and Observational Studies

◆ Different types of studies are used in nutrition:

Laboratory Studies

◆ Highly _____.

◆ Often on animals:

a) Research that can't be done on humans.

b) Gives _____ information.

Observational Studies

◆ Observational studies can show _____; not cause.

- **Case Study:** report on a particular _____.
- **Case-Control Studies:** compares group with a particular condition to _____ group without the condition.
- **Epidemiological Studies:** study defined _____ (often very _____); Often follow participants for many years.

EXAMPLE

For each study described below, choose a term from the box that describes it. Not all studies are represented.

Types of Studies:

a. Animal Study

b. Case-Control Study

c. Epidemiological Study

d. Single-Blind Clinical Trial

e. Double-Blind Clinical Trial

a. Otto believes that supplementing diets with bacterial probiotics should improve Irritable Bowel Syndrome (IBS) symptoms. He designs a study where one population with IBS receives a probiotic pill and another with IBS receives a placebo. The researchers do not know which individuals are in which group. _____

b. Josh is interested in the link between fish consumption and heart disease. He compares the amount of fish eaten by those with and without heart disease in a town surrounding his university. He does not have participants change their behaviors. _____

c. Cleo is interested in claims that foods high in vegetable oils will prevent heart disease. She organizes a study following 10,000 adult individuals, where doctors report incidences of heart disease and participant's self-reported intake of vegetable oils. _____

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PRACTICE

Why are clinical trials sometimes preferred over epidemiological studies?

a) Clinical trials tend to have much larger sample sizes used in their studies.

b) Clinical trials are usually better able to establish causal relationships than epidemiological studies.

c) Clinical trials are less expensive and easier to implement than epidemiological studies.

d) Clinical trials are all performed in a laboratory, meaning their methods are more reliable.

PRACTICE

What is an advantage of performing epidemiological nutritional research?

a) Epidemiological research tends to be better controlled than other types of research.

b) In epidemiological research, participants and researchers do not know which group the participant is in.

c) In epidemiological research, groups are assigned randomly.

d) Epidemiological research often follows large sample sizes of people living without specific interventions.