

MODULE 3—ANALYZING RESULTS

GENE EXPRESSION CHANGED BY COCAINE

D'Finer
takes the lead when it's time to analyze the results and define the cause of the results and the degree of certainty about the cause.

What Caused the Results? Describe the results of the study in terms of each item listed below. Write your answers in the space provided. *Modified from Bradford-Hill considerations on causality

Answers Here:

1. **Strength of Relationship:**

Study bias or factors negatively affecting the experiment make the results less reliable.

List factors that affected the study results.

2. **Consistency:**

Were the results similar in repeated trials or in different studies? Explain. If so, the results are more reliable.

3. **Compare Test Group to Control:**

How did the test and control groups compare? This helps establish the cause of any observed change.

4. **Strength of Effect:**

An increase in the treatment that results in an increase in observed change helps verify that the independent variable caused the results. Was this true in this study? Explain.

5. **Plausibility:**

Is there a reasonable way to explain how the treatment might cause the observed changes? Explain.

6. **Study Design:**

What kind of study design was used?

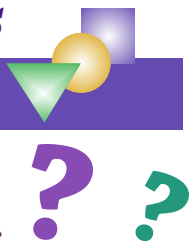
7. **Analogy:**

How could you find out if the results of this study are similar to those of other studies?



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Think about your answers to the previous questions. What probably caused the results found in this study?

How did the study design allow researchers to determine the way in which cocaine changed gene expression?

Why is it important for people to know that cocaine changes gene expression?

Why is this study important to researchers looking for treatments to help people addicted to cocaine?

Look at the data on Table 1. Why are the arrows pointed in different directions?

Look at Figure 3. Overall, how does cocaine use “turn down” genes?

Overall, how does cocaine use “turn up” genes?

What is the overall effect of cocaine on gene expression?
