What are the steps for reporting two-way ANOVA results in The Complete Guide?

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The Complete Guide provides a comprehensive overview of the steps for reporting two-way ANOVA results. First, the researcher should clearly state the research question and hypotheses being tested. Next, the data collection and statistical analysis methods should be described, including details such as sample size and significance level. The results of the ANOVA should then be presented, including the F-statistic, degrees of freedom, and p-value. Any statistically significant interactions between the two factors should also be noted. Finally, the researcher should discuss the implications of the results and how they relate to the original research question. It is important to follow these steps in order to accurately and effectively report two-way ANOVA results in The Complete Guide.

The Complete Guide: Report Two-Way ANOVA Results

A is used to determine whether or not there is a statistically significant difference between the means of three or more independent groups that have been split on two variables.

When reporting the results of a two-way ANOVA, we always use the following general structure:

A brief description of the independent and dependent variables.
Whether or not there was a significant interaction effect between the two independent variables.
Whether or not the two independent variables had a statistically significant effect on the dependent variable.

Here's the exact wording we can use:
A two-way ANOVA was performed to analyze the effect

of and on .

A two-way ANOVA revealed that there a statistically significant interaction between the effects of and (F(df interaction, df within) = , p =).

Simple main effects analysis showed that have a statistically significant effect on (p =).

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The following example shows how to report the results of a two-way ANOVA in practice.

Example: Reporting the Results of a Two-Way ANOVA

A botanist wants to know whether different levels of sunlight exposure and watering frequency effect plant growth. She plants 40 seeds and lets them grow for one month under different conditions for sunlight exposure and watering frequency.

She then performs a two-way ANOVA to determine if sunlight exposure and watering frequency effect plant growth.

The following table shows the results of the two-way ANOVA:

Source of Variation	SS	df	MS	F	p-value
Watering Frequency	0.0003	1	0.0003	0.0009	0.975
Sunlight Exposure	18.7648	3	6.2549	23.0489	0
Interaction	1.0108	3	0.3369	1.2415	0.311
Within	8.684	32			
Total	28.4597	39			

Here is how to report the results of the two-way ANOVA:

A two-way ANOVA was performed to analyze the effect of watering frequency and sunlight exposure on plant growth.

A two-way ANOVA revealed that there was not a statistically significant interaction between the effects of watering frequency and sunlight exposure (F(3, 32) = 1.242, p = .311).

Simple main effects analysis showed that watering frequency did not have a statistically significant effect on plant growth (p = .975).

Simple main effects analysis showed that sunlight exposure did have a statistically significant effect on plant growth (p < .000).

Things to Keep in Mind

Here are a few things to keep in mind when reporting the results of a two-way ANOVA:

1. Use a descriptive statistics table if necessary.

It can be helpful to present a descriptive statistics table that shows the mean and standard deviation of values in each treatment group as well to give the reader a more complete picture of the data.

As a rule of thumb, the overall F-value and any p-values in ANOVA results are rounded to either two or three decimal places for brevity.
No matter how many decimal places you choose to use, simply be consistent throughout the report.

The following tutorials explain how to report other statistical tests and procedures in APA format:

How to Report Pearson's Correlation (With Examples)