

## Reporting Statistical Results in Your Paper

### Overview

The results of your statistical analyses help you to understand the outcome of your study, e.g., whether or not some variable has an effect, whether variables are related, whether differences among groups of observations are the same or different, etc. Statistics are *tools* of science, *not* an end unto themselves. Statistics should be used to substantiate your findings and help you to say objectively when you have significant results. Therefore, when reporting the statistical outcomes relevant to your study, subordinate them to the actual *biological results*.

### Reporting Descriptive (Summary) Statistics

**Means:** Always report the **mean** (average value) along with a measure of **variability** (*standard deviation(s)* or *standard error of the mean*). Two common ways to express the mean and variability are shown below:

"Total length of brown trout (n=128) averaged 34.4 cm (s = 12.4 cm) in May, 1994, samples from Sebago Lake."

s = standard deviation (this format is preferred by [Huth and others \(1994\)](#))

"Total length of brown trout (n=128) averaged 34.4 ±12.4 cm in May, 1994, samples from Sebago Lake."

This style necessitates specifically saying in the Methods what measure of variability is reported with the mean.

If the summary statistics are presented in graphical form (a Figure), you can simply report the result in the text without verbalizing the summary values:

"Mean total length of brown trout in Sebago Lake increased by 3.8 cm between May and September, 1994 (Fig. 5)."

**Frequencies:** Frequency data should be summarized in the text with appropriate measures such as percents, proportions, or ratios.

"During the fall turnover period, an estimated 47% of brown trout and 24% of brook trout were concentrated in the deepest parts of the lake (Table 3)."

## Reporting Results of Inferential Tests

In this example, the *key result* is shown in blue and the *statistical result*, which *substantiates* the finding, is in red.

"Mean total length of brown trout in Sebago Lake increased significantly (3.8 cm) between May (34.4 cm  $\pm$ 12.4 cm, n=128) and September (38.2 cm  $\pm$ 11.7 cm, n=114) 1994 (twosample t-test,  $p < 0.001$ )."

**NOTE:** AVOID writing whole sentences which simply say what test you used to analyze a result followed by another giving the result. This wastes precious words (*economy!!*) and unnecessarily increases your paper's length.

---

Modified 9-26-08  
Department of Biology, [Bates College](#), Lewiston, ME 04240