

## Practice: Conducting a One-Sample $t$ Test with a BY Variable

A pharmaceutical company produces tablets in two facilities. The target weight for the tablets is 150 mg. You randomly select 100 tablets produced at each facility. In this practice, you test the null hypothesis that the mean tablet weight is 150 mg for each facility. The data are in the file **Tablets.jmp**.

1. Conduct a one-sample  $t$  test for Facility A.

What can you conclude?

**Hint:** Use **Analyze**, **Distribution**, and use **Facility** as a BY variable to produce separate analyses for each variable. Then, for each analysis, select **Test Mean** from the red triangle.

The mean tablet weight for Facility A is 149.64. The  $p$ -value is  $< 0.0001$ , and the 95% confidence interval for the mean does not include 150. You can reject the hypothesis that the mean tablet thickness is on target for Facility A.

2. Conduct a one-sample  $t$  test for Facility B. What can you conclude?

The mean tablet weight for Facility B is 149.96. The  $p$ -value is 0.4679, and the 95% confidence interval for the mean includes 150. The sample data are consistent with the null hypothesis that the mean tablet thickness is 150.

3. How would you explain your findings to others? **Hint:** Translate the statistical results to non-technical business results.

Based on your sample data of 100 tablets per facility, the average tablet weight for Facility A is below the target, but the tablet weight for Facility B appears to be on target.

Hide Solution