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Demo: Performing a Paired t Test

In this video, we show how to conduct a matched pairs t test using the file Therm.jmp from the Sample Data Library under the Help menu in JMP.

In this scenario, we compare temperature readings on 20 people, taken with two different types of thermometers. For each person, there are two measurements. We'll conduct a paired t test to test the null hypothesis that there is no difference in the temperature measurements against the alternative that the means are different.

To do this, we select Matched Pairs from the Analyze menu under Specialized Modeling.

We select both Oral and Tympanic as the Y, Paired Response variables, and click OK.

To conduct this analysis, JMP has calculated the differences for each pair behind the scenes. Each difference, which is plotted on the graph, is calculated as Tympanic - Oral.

The average difference is 1.12. That is, the measurements for Tympanic are, on average, 1.12 degrees higher than the measurements for Oral.

The t ratio is 8.03, and the p-value is <0.0001. This is strong evidence that the difference in the measurements for the two thermometers is significant.

A 95% confidence interval for the difference is also reported.

You can see the mean difference, and this confidence interval, on the graph. The red line is the mean difference, and the red dashed lines are the lower and upper confidence bounds.

Notice that this interval doesn't include zero. This is another indication that the difference between the two thermometers is statistically significant.

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