

Nonparametric Correlations

This guide illustrates how to compute nonparametric measures of association (Spearman's Rho, Kendall's Tau, and Hoeffding's D).

Nonparametric Correlations

- From an open JMP data table, select Analyze > Multivariate
 Methods > Multivariate.
- Select two or more continuous or discrete numeric (nominal or ordinal) from Select Columns, click Y, Columns, then click OK.

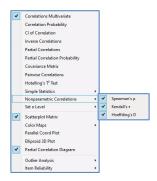
JMP produces a correlation table and a scatterplot matrix.

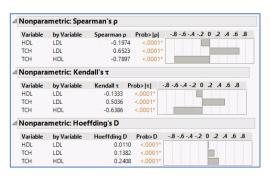
Tips: Options to edit and add components to the graph are available. Here we selected to add nonparametric density ellipses and alter the size of the points (right-click on the scatterplots and choose **Graph > Marker Size >1, Small**).

3. From the top red triangle, select **Nonparametric Correlation**, then the measure of interest (shown below, left).

The following results are provided (below, right):

- The calculated correlation coefficient for the pair of variables.
- The p-value, showing the significance of the correlation.
- A bar chart showing the correlation coefficients.





Spearman's Rho (ρ) is similar to Pearson's correlation, but is based on ranks rather than the original values. Like the Pearson correlation, values range from -1 to +1, with larger absolute values indicating a stronger relationship.

Kendall's Tau (T) is based on the number of concordant and discordant pairs of rank-ordered data. It also ranges from -1 to +1.

Hoeffding's D ranges from -.5 to 1. It measures the difference between the joint ranks of paired data and the product of their marginal ranks, and can capture nonlinear relationships.

Diabetes.jmp (Help > Sample Data Folder)

