

## Practice: Using the Linear Regression Task to Examine Residuals

Run a regression on **PctBodyFat2** in the **bodyfat2** data set to examine residuals.

1. Use the Linear Regression task to run a regression model of **PctBodyFat2** on **Abdomen**, **Weight**, **Wrist**, and **Forearm**. Create plots of the residuals by the four regressors and by the predicted values, and a normal Q-Q plot.
  1. In the Navigation pane, select **Tasks and Utilities**.
  2. Expand **Tasks**.
  3. Expand **Statistics** and open the **Linear Regression** task.
  4. Select the **stat1.bodyfat2** table.
  5. Assign **PctBodyFat2** to the Dependent variable role.
  6. Assign **Abdomen**, **Weight**, **Wrist**, and **Forearm** to the Continuous variables role.
  7. On the MODEL tab, use the Model Effect Builder to specify the appropriate model. Click the **Edit this model** icon, select all variables, and click **Add**. Then click **OK**.
  8. On the OPTIONS tab, the default selections produce the residuals plot for each explanatory variable and all the default diagnostic plots, which include residuals versus predicted plot and the normal Q-Q plot. No other selections are needed.
  9. Click **Run**.

Here are the [results](#).

2. Do the residual plots indicate any problems with the constant variance assumption?

It doesn't appear that the data violate the assumption of constant variance. Also, the residuals show nice random scatter and indicate no problem with model specification.

3. Are there any outliers indicated by the evidence in any of the residual plots?

There are a few outliers for **Wrist** and **Forearm**, and one clear outlier in both **Abdomen** and **Weight**.

4. Does the Q-Q plot indicate any problems with the normality assumption?

The normality assumption seems to be met.

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