

Practice: Using the Linear Regression Task to Assess Collinearity

Run a regression of **PctBodyFat2** on all the other numeric variables in the data set **bodyfat2**.

1. Use the Linear Regression task to determine whether a collinearity problem exists in your model.
 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 **Age, Weight, Height, Neck, Chest, Abdomen, Hip, Thigh, Knee, Ankle, Biceps, Forearm,** and **Wrist** 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, use the drop-down list for Display statistics and select **Default and selected statistics**.
 9. Expand **Collinearity** and select **Variance inflation factors**.
 10. Suppress all the plots by clearing the check boxes for all the different graphic output options.
 11. Click **Run**.

Here are the [results](#).

There seems to be high collinearity with **Weight, Hip,** and **Abdomen**. **Chest** and **Thigh** are below the cut off but are larger than the others that do not exceed 5.

2. If there is a collinearity problem, what would you like to do about it? Will you remove any variables? Why or why not?

The answer is not so easy. **Weight** is collinear with some of the other variables, but as you saw before in your model-building process, **Weight** is a relatively significant predictor in the "best" models. A subject-matter expert should determine the answer. If you want to remove **Weight**, modify the model using the Model Effects Builder and rerun the task.

1. On the MODEL tab, click the **Edit this model** icon.
2. Select **Weight** from the Model Effects list, and then click the **Delete effect** icon.
3. Click **OK**.
4. Click **Run**.

Here are the [results](#).

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