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## Exercise: Using PROC GLMSELECT to Perform Other Model Selection Techniques

Use the **stat1.bodyfat2** data set to identify a set of "best" models using other model selection techniques.

1. With the SELECTION=STEPWISE option, use SELECT=SBC in PROC GLMSELECT to identify a set of candidate models that predict **PctBodyFat2** as a function of the variables **Age**, **Weight**, **Height**, **Neck**, **Chest**, **Abdomen**, **Hip**, **Thigh**, **Knee**, **Ankle**, **Biceps**, **Forearm**, and **Wrist**. Submit the code and view the results.

```
/*st104s02.sas*/ /*Part A*/
ods graphics on;
proc glmselect data=STAT1.bodyfat2 plots=all;
   STEPWISESBC: model PctBodyFat2 = Age Weight Height Neck Chest Abdomen
                      Hip Thigh Knee Ankle Biceps Forearm Wrist
                      / SELECTION=STEPWISE SELECT=SBC;
        title 'SBC STEPWISE Selection with PctBodyFat2';
run;
```

   Here are the results.

   In the results, notice the following:
   - The stepwise selection process, using SELECT=SBC, seems to select a five-effect model (including the intercept).
   - The Coefficient panel shows that the standardized coefficients do not vary greatly when additional effects are added to the model.
   - The Fit panel indicates that the best model, according to AIC, AICC, adjusted R-square, and SBC, is the final model viewed during the selection process. Remember that this statement compares only the models that were viewed in these steps of the selection process.
   - The parameter estimates from the selected model are presented in the Parameter Estimates table.

2. Modify the code to specify **SELECT=AIC**. Submit the code and view the results.

```
/*st104s02.sas*/ /*Part B*/
proc glmselect data=stat1.bodyfat2 plots=all;
   STEPWISEAIC: model PctBodyFat2=Age Weight Height
                      Neck Chest Abdomen Hip Thigh
                      Knee Ankle Biceps Forearm Wrist
                      / SELECTION=STEPWISE SELECT=AIC;
   title 'AIC STEPWISE Selection with PctBodyFat2';
run;
quit;
title;
```

   Here are the results.

   Using SELECT=AIC, the selected model contains nine effects (including the intercept).

Hide Solution