3 (between-subjects) x 2 (within-subjects) Mixed ANOVA in SPSS:

1. Analyze- general linear model – repeated measures
2. In the ‘Within-Subject Factor Name’ box give a name for your repeated measures variable (in our case it is Food\_Type).
3. In the ‘Number of Levels’ box type the number of factors within your repeated-measures variable (in our case its 2: Unhealthy and Healthy)
4. Click add and Define
5. You will need to move your repeated measures into the ‘Within-Subjects Variables’ box:

Graphical user interface, application

Description automatically generated Graphical user interface, application

Description automatically generated

Input and output of step 5.

1. Move the between-subjects variable to the ‘Between-Subjects Factor(s)’ box.
2. Click on Contrasts – select your between-subjects variable (in our case group\_ID) – change the contrast to Simple.
3. If your Control Group is placed last in your between-subjects variable then in the Reference Category select Last (if it is first select First)
4. Click Change and Continue

Graphical user interface, text, application, chat or text message

Description automatically generated

Step 9 output.

1. Click on Plots and move your between-subjects variable to the Horizontal Axis and the within-subjects variable to Separate Lines.
2. Click Add - select Bar Chart - click on Include Error bars and click Continue
3. Click on EM Means and select the items that you need results for.

In our case, we are only interested in the interaction between the between-subects variable (group\_ID) and the within-subjects variable (Food\_Type) because we want to see if the difference in liking differed across groups based on food types. So, we move the group\_ID\*Food\_Type item into the ‘Display Means For’ box.

If we also wanted to investigate the differences in liking **within** groups then we would also move the group\_ID variable to the ‘Display Means’ box. However, this would require multiple statistical tests to be performed automatically so we would need to use a bonferonni correction by ticking the Compare main effects box and switching to bonferoni.

1. Click Continue
2. Under ‘Options’ select Descriptive statistics, Estimates of effect size and Observed power – Click Continue and OK

Note: Post-hoc tests are not needed for this kind of design.

**Choosing contrasts**

<https://www.youtube.com/watch?v=fXDNBeY2qp0>

**EM Means SPSS function:**

see page 686 section 15.14.4 of Andy Field textbook

Simply, the EM Means function is another way to get post-hoc tests