Exploratory Guinea Pigs

March 22, 2015

We are given a dataset about teeth growth on Guinea Pigs subject to treatments of Vitamin C. Our goal is to perform exploratory analysis to see what we can find. So let's do that!

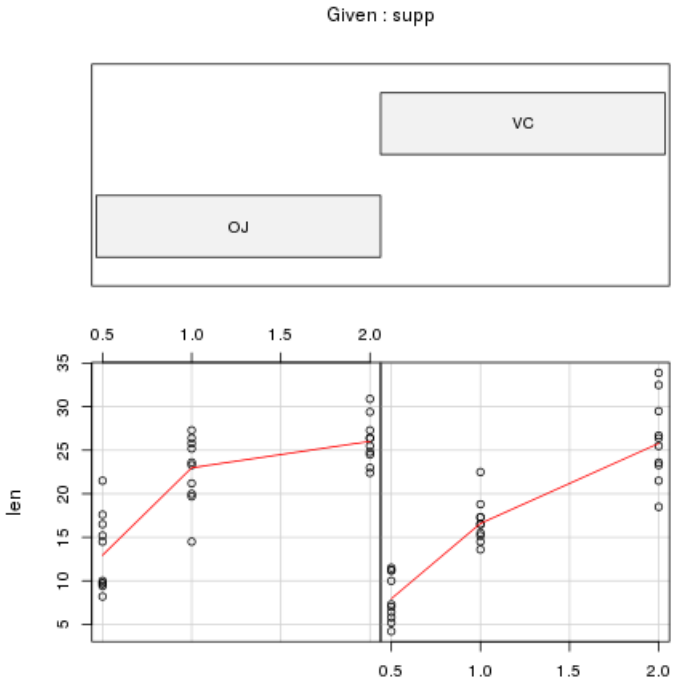
The description from the dataset states:

> The response is the length of odontoblasts (teeth) in each of 10 guinea pigs at each of three dose levels of Vitamin C (0.5, 1, and 2 mg) with each of two delivery methods (orange juice or ascorbic acid).

Therefore, we can cast the data into the following table.

	Orange Juice			Ascorbic Acid		
ID	0.5	1	2	0.5	1	2
1	15.2	19.7	25.5	4.2	16.5	23.6
2	21.5	23.3	26.4	11.5	16.5	18.5
3	17.6	23.6	22.4	7.3	15.2	33.9
4	9.7	26.4	24.5	5.8	17.3	25.5
5	14.5	20	24.8	6.4	22.5	26.4
6	10	25.2	30.9	10	17.3	32.5
7	8.2	25.8	26.4	11.2	13.6	26.7
8	9.4	21.2	27.3	11.2	14.5	21.5
9	16.5	14.5	29.4	5.2	18.8	23.3
10	9.7	27.3	23	7	15.5	29.5

We also show the recommended plot from the package.



ToothGrowth data: length vs dose, given type of supplement

We can see that the tooth length growth increases as the Vitamin C does, that is since each step of the broken straight line has positive slope. However, we are curious as to whether the increase is stronger at different levels, that is from 0.5mg to 1mg or from 1mg to 2mg.

With respect to the delivery method the graph suggest that there is more growth with the Orange Juice method than the VC method, but we can't expect the difference to be *significant*.