

# ToothGrowth Analysis

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```
{r setup, include=FALSE} knitr::opts_chunk$set(echo = TRUE)
```

## ToothGrowth Data Set

Exploratory Data Analysis

```
“{r toothGrowth} data(“ToothGrowth”)
```

```
?ToothGrowth #We can see that this data is collecting the effects of Vitamin C on Tooth Growth in Guinea Pigs #[,1] len (numeric) = numeric Tooth Length #[,2] supp (factor) = Supplement type (VC or OJ) #[,3] dose (numeric) = Dose in milligrams/day
```

## Taking a look at layout of data

```
head(ToothGrowth)
```

```
summary(ToothGrowth)
```

```
““
```

## Exploratory Data Analysis

Is the supplement type, alongside dosage, a determining factor for tooth growth?

```
“{r pressure, echo=FALSE}
```

## VC data only

```
VC_only <- ToothGrowth[ToothGrowth$supp == “VC”,] OJ_only <- ToothGrowth[ToothGrowth$supp == “OJ”,]
```

```
library(ggplot2) library(gridExtra)
```

```
VC_plot <- ggplot(VC_only, aes(x = dose, y = len, fill = factor(dose))) + geom_boxplot() + xlab(“Dosage”) + ylab(“Tooth Length”) + ggtitle(“The Effect of VC and Dosage on Tooth Growth”)
```

```
OJ_plot <- ggplot(OJ_only, aes(x = dose, y = len, fill = factor(dose))) + geom_boxplot() + xlab(“Dosage”) + ylab(“Tooth Length”) + ggtitle(“The Effect of OJ and Dosage on Tooth Growth”)
```

```
grid.arrange(VC_plot, OJ_plot, nrow = 1)
```

```
““
```

## Conclusions

For lower doses (both .5 & 1.0), OJ had a more impactful effect on tooth growth. However, at a dose of 2.0 had a slightly higher impact than OJ. Lastly, the most important factor in tooth growth is dosage, as no matter the supplement type, a dosage of 2.0 has the highest impact on tooth growth.