

Tooth Growth Analysis

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Overview:

This analysis examines the effects of vitamin C on tooth growth in guinea pigs. Each of the 60 guinea pigs studied received one of three doses of vitamin C per day: 0.5, 1.0, or 2.0 mg/day. There were two delivery methods: orange juice (OJ) and ascorbic acid (VC). The response measures the growth in odontoblasts (cells responsible for tooth growth).

```
# Load dataset
library(datasets)
data("ToothGrowth")
```

Exploratory analysis

```
# List length of rows / columns
dim(ToothGrowth)
```

```
## [1] 60 3
```

```
# Determine column data types
str(ToothGrowth)
```

```
## 'data.frame': 60 obs. of 3 variables:
## $ len : num 4.2 11.5 7.3 5.8 6.4 10 11.2 11.2 5.2 7 ...
## $ supp: Factor w/ 2 levels "OJ","VC": 2 2 2 2 2 2 2 2 2 2 ...
## $ dose: num 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 ...
```

```
# Range of tooth growth
range(ToothGrowth$len)
```

```
## [1] 4.2 33.9
```

```
# Levels and counts of delivery methods/supplements
table(ToothGrowth$supp)
```

```
##
## OJ VC
## 30 30
```

```
# Levels and counts of dosages
table(ToothGrowth$dose)
```

```
##
## 0.5 1 2
## 20 20 20
```

Data summary

Comparison of tooth growth by supp and dose

Conclusions and assumptions