

paired-t-test.pdf

You run a paired t test when you are interested in comparing similar observations between two groups. For example, comparing sepal length between two species (*setosa* and *versicolor*). This is a parametric test so it is necessary to test for the basic assumptions.

The data that I am using is iris.txt

```
iris <- read.table("iris.txt")
```

I want to compare sepal length between *setosa* and *versicolor*.

```
setosa <- iris$Sepal.Length[iris$Species == "setosa"]
```

```
versicolor <- iris$Sepal.Length[iris$Species == "versicolor"]
```

Testing the assumptions:

Make sure the data are the same length

```
length(setosa)
```

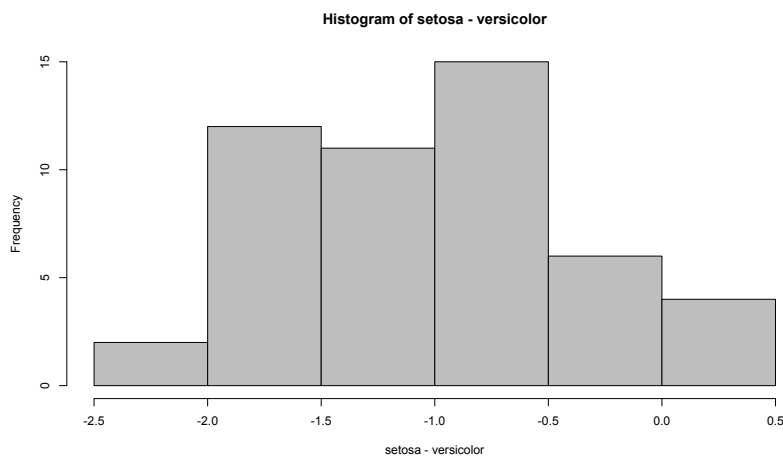
```
[1]50
```

```
length(versicolor)
```

```
[1]50
```

Ensure that the differences between the pairs are normally distributed

```
hist(setosa - versicolor)
```



Run the test using the build in function

```
t.test(setosa,versicolor,paired=TRUE, conf.level=0.95)
```

The output:

Paired t-test

data: setosa and versicolor

t = -10.146, df = 49, p-value = 1.242e-13

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-1.114203 -0.745797

sample estimates:

mean of the differences

-0.93