The pairwise.t.test() function

Numeric response variable

Dataframe

Dollar sign $ to specify column in dataframe

```
pairwise.t.test(x = df.mass$antler.mass,
                g = df.mass$diet,
                p.adjust.method = "none")
```

Categorical grouping variable

If and how to correct p-values for multiple comparisons. If set to “none” it uses the pooled SD from all of the data, not just the data specific to each individual pairwise test.

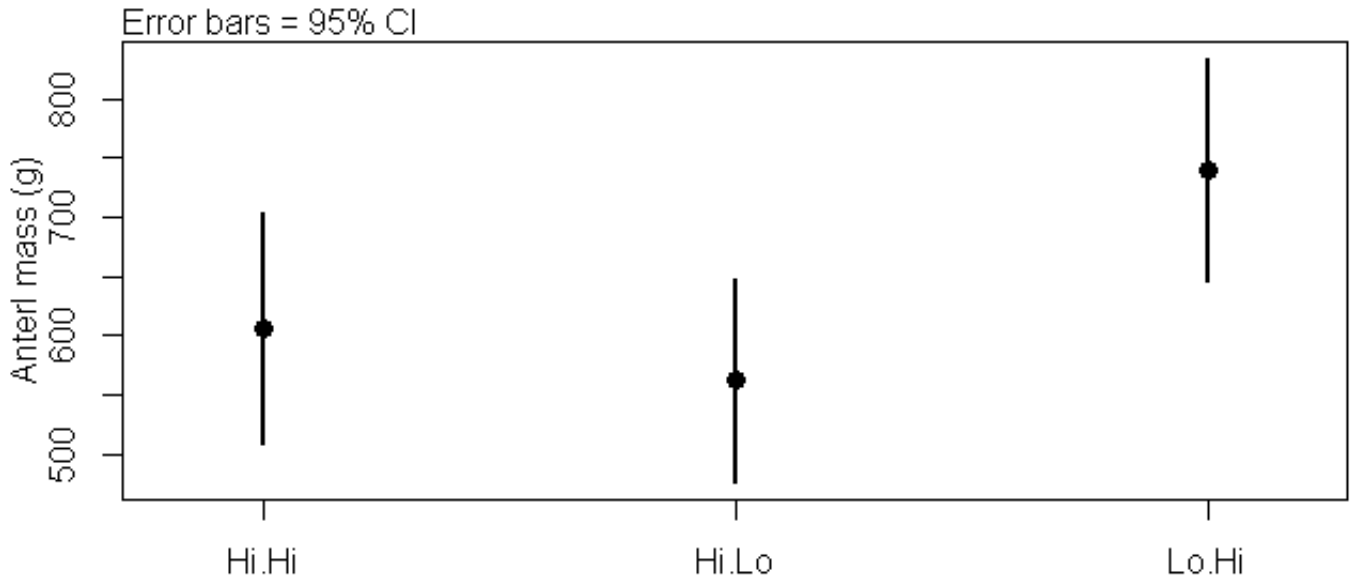
```
        Pairwise comparisons using t tests with pooled SD

data:  df.mass$antler.mass and df.mass$diet

       Hi.Hi Hi.Lo
Hi.Lo  0.506 -
Lo.Hi  0.050 0.011

P value adjustment method: none
```

All possible comparisons between pairs of means

The structure of **pairwise.t.test()** is a little different than other R functions such as t.test. This is because **pairwise.t.test()** cannot use “formula notation” to specify the test; that is, it doesn’t understand what a tilde (~) is. What it takes are 2 arguments: “x” for a numeric response variable, and “g” for a grouping variable that defines the categories that the numeric data are grouped into (treatment, population, site etc). **pairwise.t.test()** can be set to not correct p-values for multiple comparisons, as is often recommended if you are investigating “planned comparisons” of means and have a significant ANOVA Omnibus F-test (eg. Pg xxx Whitlock & Shulter, 2nd ed). If set to “none” it carries out a modified t-test using the pooled standard deviation from the data.

Data used in example

```
summary(df.mass)
 antler.mass         diet
Min.   :346.0   Hi.Hi:10
1st Qu.:526.9   Hi.Lo:10
Median :648.4   Lo.Hi:10
Mean   :635.9
3rd Qu.:762.4
Max.   :919.3
```



The data used in this example is a dataframe called “df.mass” that has 2 columns. The data are from an experiment on how different peiriods of high and low protein affect anterl growth in white tailed deer. A numeric variable is in the 1st column “antler.mass”, and a categorical variables (“diet”) with 3 groups is in the 2nd column. “Hi.Hi” is a diet with consistently high protein content. The “Hi.Lo” treatment provided high protein followed by a period with a low-protein diet. “Lo.Hi” began with a low protein diet and switched to a high protein diet.