

Free t-test for two samples essay sample

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This example involves a pharmaceutical company that is testing a new medication to change oxygenation levels. In one group the subjects received the experimental drug while in the other group the subjects did not receive the drug. Subjects in each group were then measured on oxygenation levels. This is not a reversal design in which the groups then are switched in terms of condition. Therefore it is an independent samples test, comparing the means for two different groups.

The question posed is whether the mean oxygenation level for Group 1 (treatment group), is the same as the mean oxygenation level for Group 2 (no-treatment). The null hypothesis for this study is that there will be no differences between the two groups. Since there is no alternative hypotheses listed suggesting the groups will differ in a specific direction, the alternate hypothesis is that the group means will differ at the .05 level. This would indicate that the probability that the observed differences were accounted for by chance and not the experimental condition was 5%. In this case, the null hypothesis would be rejected and the alternative hypothesis accepted. The reverse would be concluded if the result was not significant at the .05 level.

The results of the two tailed T-test for these two assuming equal variances with an alpha level of .05 is as follows: The T-value is 0.898933. The p-Value is 0.382018. The result is not significant at $p < 0.05$. The p-value indicates that there is approximately a 90% probability that the null hypothesis, or the hypothesis that there are no differences between groups, will be rejected when it is true.