

Dependent t-test for paired samples

What does this test do?

The dependent t-test (also called the paired t-test or paired-samples t-test) compares the means of two related groups to determine whether there is a statistically significant difference between these means.

What is meant by "related groups"?

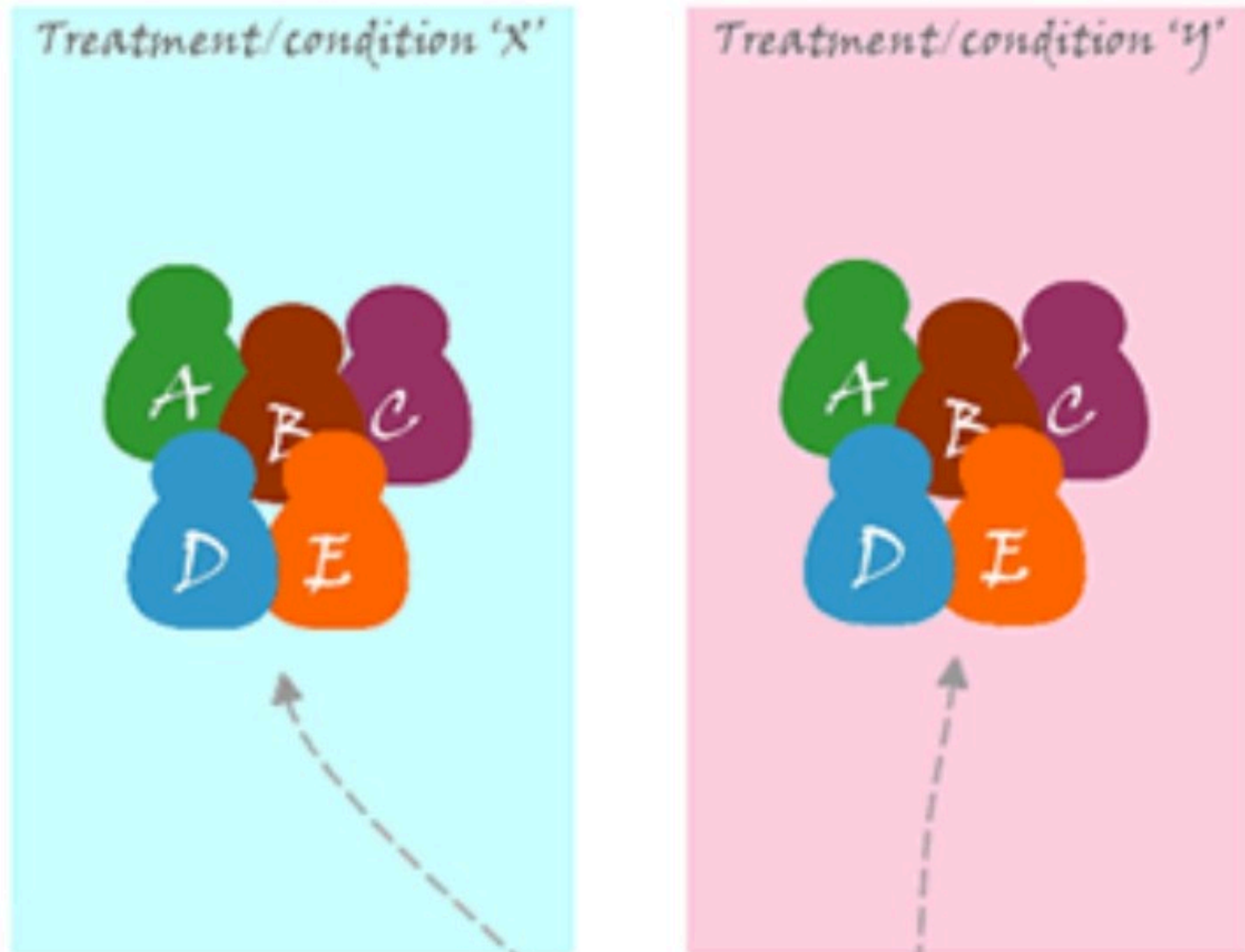
A dependent t-test is an example of a "within-subjects" or "repeated-measures" statistical test. This indicates that the same participants are tested more than once. Thus, in the dependent t-test, "related groups" indicates that the same participants are present in both groups. The reason that it is possible to have the same participants in each group is because each participant has been measured on two occasions on the same dependent variable. For example, you might have measured the performance of 10 participants in a spelling test (the dependent variable) before and after they underwent a new form of computerised teaching method to improve spelling. You would like to know if the computer training improved their spelling performance. Here, we can use a dependent t-test because we have two related groups. The first related group consists of the participants at the beginning (prior to) the computerised spell training and the second related group consists of the same participants, but now at the end of the computerised training.

Does the dependent t-test test for "changes" or "differences" between related groups?

The dependent t-test can be used to test either a "change" or a "difference" in means between two related groups, but not both at the same time. Whether you are measuring a "change" or "difference" between the means of the two related groups depends on your study design. The two types of study design are indicated in the following diagrams.

Participants do....

Participants:



1. ALL participants do ALL treatments/conditions
2. Same Dependent Variable measured