

Appendix 2. Overview of the paired sample t test

From:

Zar, J.H. 1999. *Biostatistical analysis*. 4th edition. Prentice-Hall, Upper Saddle River, NJ.

A paired-sample t test is used to determine the significance of the difference between two sets of paired data. In the experimental design described here, initial and final counts of vulnerable snails in each aquarium within one treatment are paired for the analysis. These pairings are based on our expectation that final counts of vulnerable snails in each aquarium should be affected by initial counts of vulnerable snails in addition to whether or not predator cues were introduced.

Two paired-sample t tests are needed to test our experimental hypothesis that snails detect predator cues, then increase use of refuges from these predators. In the first t test we investigate for differences in initial and final numbers of vulnerable snails in the predator-free treatment. This first test is necessary to rule out physical disturbance associated with water transfer procedures as a cause for shifts in snail habitat use, and to separate this disturbance from chemical-cue effects in the predator-cue treatment. We should not find statistically significant changes in numbers of vulnerable snails in the predator-free treatment. However, in the second paired-sample t test (predator-cue treatment), we should find statistically significant declines in numbers of vulnerable snails following addition of water with chemical cues to aquaria.