

§10.2: Comparing Two Means

Skills

- Conduct a two sample t test for the difference of means
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Tests of Significance

$$H_0: \mu_1 - \mu_2 = 0$$

$$H_a: \mu_1 - \mu_2 \neq 0$$

Conditions

- Random Samples or Assignment
 - 10% condition
 - Both samples must be large, or both samples must be free from strong skew or outliers
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Mechanics

p-value from the calculator

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

DF = use the calculator's approximation

Example

21 men participated in a study about calcium intake and blood pressure.

10 men received a calcium supplement for 10 weeks. 11 men received a placebo for the same 10 weeks.

At the end, the change in systolic blood pressure was measured.

Do the data suggest a difference between the groups?

Example

Calcium	Placebo
7	-1
-4	12
18	-1
17	-3
-3	3
-5	-5
1	5
10	2
11	-11
-2	-1
	-3