Hypotheses

- Independent Samples t-test

$$H_0: \mu_1 = \mu_2$$
$$H_1: \mu_1 \neq \mu_2$$

- Related-Samples t-test

$$H_0: \mu_D = 0$$
$$H_1: \mu_D \neq 0$$

Independent Samples t-test

$$t = \frac{(M_1 - M_2) - (\mu_1 - \mu_2)}{\sqrt{s_1^2/n_1 + s_2^2/n_2}}$$

Independent Samples t-test

$$s_p^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

Independent Samples t-test

$$t = \frac{(M_1 - M_2) - (\mu_1 - \mu_2)}{\sqrt{s_p^2/n_1 + s_p^2/n_2}}$$

$$df = n_1 + n_2 - 2$$

Independent Samples t-test

$$d = \frac{M_1 - M_2}{\sqrt{s_p^2}}$$

$$\eta^2 = \frac{t^2}{t^2 + df} \quad \text{or} \quad \omega^2 = \frac{t^2 - 1}{t^2 + df}$$

Related-Samples t-test

$$t = \frac{\bar{D} - 0}{s_D / \sqrt{n}}$$

Related-Samples t-test

$$d = \frac{\overline{D} - \mu_D}{s_D}$$

$$\eta^2 = \frac{t^2}{t^2 + df} \quad \text{or} \quad \omega^2 = \frac{t^2 - 1}{t^2 + df}$$