



Claim to be tested...

Difference between the population mean height of Men and Women Olympic athletes is 12.5 cm



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### Step 1: Formulate Hypothesis

 $H_0$ :  $\mu_{Men} - \mu_{Women} = 12.5$ 

 $H_A$ :  $\mu_{Men} - \mu_{Women} \neq 12.5$ 



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H<sub>0</sub>: \mu_{\text{Men}} - \mu_{\text{Women}} = 12.5 o "Difference in means" test
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### Step 2: Calculate the t-statistic

- Nature of variation or variance in the two populations.



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"Equal" variance assumption

$$\frac{\overline{x_1} - \overline{x_2} - \mu}{\sqrt{\left(\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

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