Tutorial 4A

Hypothesis Testing – Parametric Tests

A biomaterials engineer has proposed two different topographies for a stent. Each of these two topographies have been investigated for their angiogenesis (blood vessel formation) potential. Angiogenesis activity was measured using a fluorescence-based assays (a.u.) where higher values suggest greater amounts of blood vessel formation.

Angiogenesis Activity Stent Topography [a.u.].

Subject	1	2	3	4	5	6	7	8
Topography A	15.8	17.3	15.7	16.9	18.5	17.3	16.5	18.1
Topography B	18.5	19.4	19.3	20.1	19.6	19	18.5	18

Summary Statistics:

Subject	Mean	Median	Standard Deviation	Shapiro-Wilk Test p-value
Topography A	17.0	17.1	1.00	0.713
Topography B	19.1	19.2	0.68	0.929
Levene's Test	0.329			

Use this study and associated data to answer the following questions:

1) What is the appropriate statistical test for this data?

2) What assumptions are you making by choosing this test? Justify why they are acceptable.

3) Compute the statistical significance using the critical value method.

4) Compute the corresponding confidence interval for the difference of means.

5) What do you conclude?