Statistical Test Decision Tree

A practical first-pass guide for common comparison questions.

1. Identify the outcome

Outcome	Common model family
Continuous	t test, ANOVA, linear or mixed model
Binary	Proportion method, chi-square, logistic model
Count	Poisson or negative-binomial model
Time to event	Survival analysis

2. Identify dependence and groups

Structure	Candidate method
Two independent continuous groups	Independent-samples t test or suitable alternative
Two paired continuous measurements	Paired t test or suitable alternative
Three or more independent groups	ANOVA or Kruskal-Wallis
Repeated observations	Repeated-measures ANOVA or mixed model
Two paired binary measurements	McNemar test or paired binary model

Final checks

- □ The unit of analysis matches the sampling and allocation unit.
- □ Clustering, pairing, repeated observations, and time are represented.
- □ The primary contrast and estimand are written before analysis.
- □ Assumptions, diagnostics, effect sizes, and confidence intervals are planned.

Use this resource with the related DataStatPro guide. Adapt every decision to the approved protocol, data structure, and destination requirements.