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Table 1 Some commonly used statistical tests

Parametric test	Example of equivalent non-parametric test	Purpose of test	Example
Two sample (unpaired) t test	Mann-Whitney U test	Compares two independent samples drawn from the same population	To compare girls' heights with boys' heights
One sample (paired) t test	Wilcoxon matched pairs test	Compares two sets of observations on a single sample	To compare weight of infants before and after a feed
One way analysis of variance (F test) using total sum of squares	Kruskall-Wallis analysis of variance by ranks	Effectively, a generalisation of the paired t or Wilcoxon matched pairs test where three or more sets of observations are made on a single sample	To determine whether plasma glucose level is higher one hour, two hours, or three hours after a meal
Two way analysis of variance	Two way analysis of variance by ranks	As above, but tests the influence (and interaction) of two different covariates	In the above example, to determine if the results differ in male and female subjects
x^2 test	Fisher's exact test	Tests the null hypothesis that the distribution of a discontinuous variable is the same in two (or more) independent samples	To assess whether acceptance into medical school is more likely if the applicant was born in Britain
Product moment correlation coefficient (Pearson's r)	Spearman's rank correlation coefficient (r_σ)	Assesses the strength of the straight line association between two continuous variables.	To assess whether and to what extent plasma HbA1 concentration is related to plasma triglyceride concentration in diabetic patients
Regression by least squares method	Non-parametric regression (various tests)	Describes the numerical relation between two quantitative variables, allowing one value to be predicted from the other	To see how peak expiratory flow rate varies with height

| Multiple regression by least squares method | Non-parametric regression (various tests) | Describes the numerical relation between a dependent variable and several predictor variables (covariates) | To determine whether and to what extent a person's age, body fat, and sodium intake determine their blood pressure |

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