

# Nonparametric tests for two group comparisons of dependent observations obtained at varying time points with application to RNA viral load decline

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*Abstract:* We propose new tests for two-group comparisons of repeated measures that might be obtained at arbitrary time points and differ over individuals. The tests do not make any assumptions regarding the distribution of the repeated measures except that one of them assumes that the repeated measures can be grouped into distinct periods of observations such that the covariance between scores only depends on the periods the observations belong to and that the covariance matrices are the same in the two groups. The tests remain valid even if the probability that a response is observed depends on the level of response if missing data mechanisms are the same in both groups. Inference can be based on resampling. We use the tests to assess differences in viral load decline for drug resistant and drug sensitive human immunodeficiency virus (HIV)-1 infected patients.