|  |
| --- |
| The SAS System |

“The choice of statistical test depends on which assumptions are reasonable. One possibility is a t test. A paired or two-sample t test is valid when there is no carryover effect and no interactions between patients, treatments, and periods. See Senn ([1993](http://127.0.0.1:61009/help/statug.hlp/statug_power_references.htm#statug_powersenn_s93), Chapter 3) for more details. The choice between a paired or a two-sample test depends on what you assume about the period effect. If you assume no period effect, then a paired t test is the appropriate analysis for the design”

The POWER Procedure

Paired t Test for Mean Difference

| **Fixed Scenario Elements** | |
| --- | --- |
| **Distribution** | Normal |
| **Method** | Exact |
| **Alpha** | 0.01 |
| **Mean 1** | 33 |
| **Mean 2** | 1.3 |
| **Standard Deviation 1** | 27.6 |
| **Standard Deviation 2** | 19.1 |
| **Correlation** | -0.28 |
| **Nominal Power** | 0.85 |
| **Null Difference** | 0 |

| **Computed N Pairs** | | | |
| --- | --- | --- | --- |
| **Index** | **Sides** | **Actual Power** | **N Pairs** |
| **1** | 1 | 0.855 | 19 |
| **2** | 2 | 0.853 | 22 |

Description

The sample size estimation (2 sided) assumes no order/period effect, using paired sample t test. Using the first experiment data, we have mean TP difference of 33.0 (standard deviation: 27.6) (post-pre), and mean TP difference of 1.3 (standard deviation: 19.1) (post -pre). The correlation between the pair difference is -0.39. The difference estimates from the sample excluding two outlying records (#3 and #4). After adjusting 20% potential data missing and contamination, we will require 27 participants.

| **Pearson Correlation Coefficients  Prob > |r| under H0: Rho=0  Number of Observations** | | |
| --- | --- | --- |
|  | **Q\_Pre\_to\_post** | **R\_pre\_to\_post** |
| **Q\_Pre\_to\_post** | |  | | --- | | 1.00000 | |  | | 29 | | |  | | --- | | -0.27585 | | 0.1554 | | 28 | |
| **R\_pre\_to\_post** | |  | | --- | | -0.27585 | | 0.1554 | | 28 | | |  | | --- | | 1.00000 | |  | | 29 | |

\*N=28 (excluding two records)