* If we borrow the data in table II from “*Slower Recovery after Two-Incision than Mini-Posterior-Incision Total Hip Arthroplasty*” (using the physical score of SF-12 components from preop and 1 year).

Suppose the correlation coefficient of SF-12 between baseline and 1 year is 0.5.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| µ0 | 11.3 | µ1 | 15.8 | µ | 4.5 |
| σ0 | 8.4 | σ1 | 13.3 | σ^2 | 135.73 |
| ρ | 0.5 |  |  |  |  |
| α | 0.05 |  |  | Z1-α/2 | 1.96 |
| β | 0.20 |  |  | Z1-β | 0.84 |
|  |  |  |  | n | 105 |
| n | 200 |  |  | power | 0.97 |

1. If the power=0.7 then n=83 for each group (Anterior and Posterior).
2. If the power=0.8 then n=105 for each group (Anterior and Posterior).
3. If the power=0.9 then n=141 for each group (Anterior and Posterior).
4. If the sample size n=200 for each group, then the power=0.97.

If we take the mental score from SF-12 component, for power=0.8, then sample size need to be n=1418 for each group.

* We have another paper “clinical comparative study of anterior with mini-posterior” which has no SF-score, but the functional Total score. Based on the functional total score in table 1(baseline), and in table 4 (6 month after operation), the sample size will be huge since the mean difference between baseline and 6 month after operation are both 8.5 for group of direct anterior approach and mini-posterior approach. I have tried with other score like pain/mobility/ability to work, which have similar output for the sample size.
* I will suggest we use repeated measures analysis (with “proc mixed” procedure) for future analysis since we will have longitudinal data for SF-12 score at preoperation, 1 month, 3 month, and 1 year. From repeated measures analysis, we can compare between the two approaches, time effect, and the pattern of the two approaches with follow-up.