This is an advertisement, where Lipozene claims that people who took the fat burning pill have lost over 400% weight based on their clinical trials in which the active group has lost around 2.75 lbs and the placebo group has gained around2.18 lbs. The statistics from the trials conducted by them are showing an incomplete, not perfect, and misleading representation so it is somewhat difﬁcult to interpret implicitly due to the following reasons:

**They did not mention their clinical experiments in detail like:**

How many days did they undergo this experiment? What’s the Age of the people? Gender? Place? Health Conditions? Food Habits? Daily Routine? Blood Groups and etc., There is no clear and concise information on these aspects, and it’s difficult for one to draw inferences. There is no quantifiable metric to define or decide the loss of 400% weight. The people who have participated in the study should be provided with identical situations to both groups.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Active Group | Placebo Group | % Loss in Active Group over Placebo Group  = [A-(-P) in lbs / Avg. Wt of (P- A)] \* 100 |
| 1st Assumption | 130 lbs | 131 lbs | 493% |
| 2nd Assumption | 135 | 138 | 164% |
| 3rd Assumption | 140 | 180 | 12.3% |

These assumptions depict the sudden increase and decrease in the weights of Placebo Group people and we can draw an inference that the claims of Lipozene are misleading and incomplete. So, without the actual and accurate data, one cannot estimate the likelihood of this ad.

I would choose **Stratified Sampling** because the population is segregated into no duplicating groups usually called strata and a sample is selected by some strategy in each stratum. Then, a probability sample is drawn from each group. We can increase or decrease the sample size depending on the precision to achieve. It is the best decision among the probability sampling methods when the subgroups have distinct mean values.

**References:**

Lauren Thomas (September 18, 2020) How to use stratified sampling, <https://www.scribbr.com/methodology/stratified-sampling/>