

A black and white photograph of a gym. In the foreground, a rack of dumbbells is visible, with several large dumbbells in focus. In the background, several people are working out on various machines and free weights. The gym has a high ceiling with fluorescent lights. A yellow rectangular box is overlaid in the center of the image, containing the text "MuscleHub Statistics".

MuscleHub Statistics

A/B Test Summary

- In this A/B test, Janet's hypothesis (that the fitness test intimidates some prospective members) is tested by measuring the percentage of prospective members who were given the fitness test (Group A) and eventually purchase membership against the prospective members who were not given the fitness test and eventually purchase membership (Group B).
- The A/B test revealed that 7.98% of Group A eventually purchased membership, while 10% of Group B eventually purchased membership. These results appear to support Janet's hypothesis that the fitness test intimidates some prospective members, resulting in them not purchasing a gym membership.

Dataset Summary

- In our dataset, prospective gym applicants were split into two data groups: Group A (given a fitness test) had 2504 prospective members, and Group B (no fitness test) had 2500 members. The groups had a near identical number of prospective members in order to ensure an equal sample size when comparing the end results of the test.
- Additional background information which is important to note is that the testing seeks to determine the percentage of prospective members who purchase membership based on whether they were administered a fitness test or not. It does not take into account the percentage of prospective members who filled out an application or not after taking the test, or whether filling out an application was indicative of eventual membership purchase.

Our Hypothesis Tests

- The first hypothesis test we ran was a chi-squared test to determine whether the result of the difference between Group A members who filled out an application vs. Group B members who filled out an application was significant. The test concluded that the result was *not* significant.
- The second hypothesis test we ran was a chi-squared test to determine the significance of the hypothesis that Group A members were more likely to purchase a membership IF they filled out an application. The test concluded that the result was not significant.

Our Hypothesis Tests (continued) & Summary

- Our third hypothesis test was a chi-squared test to test the significance of the difference between Group A and Group B members in the eventual purchase of a gym membership. The test concluded that result *is* significant.
- The chi-squared test is a test that determines whether or not there is a significant association between two groups in a population sample. In this case, the two groups were those who were given a fitness test (Group A) and those who were not (Group B). A chi-squared test was appropriate in this setting because it is often used in random sampling cases. In this case, gym applicants were randomly split into Group A or Group B. If the determined p-value is less than 0.05, the null hypothesis that there is no significant difference between the two datasets is rejected. In the third test, the p-value was indeed less than 0.05. Therefore, we were able to conclude that there is a significant difference between the data from Group A and Group B. Thus, it can be concluded that the prospective gym members who were administered a fitness test were significantly less likely to eventually purchase a membership than those who were not given a fitness test.

Recommendation

- My recommendation for MuscleHub would be to either eliminate the preliminary fitness test for prospective members altogether, or to make the preliminary fitness test strictly optional to those considering membership. As displayed by our testing, members who are subjected to a preliminary fitness test are significantly less likely to eventually purchase membership than prospective members who are not required to take the fitness test. By eliminating the test, or by offering it on a completely optional basis, MuscleHub can significantly increase the percentage of prospective members who eventually purchase gym membership.