Muscle Hub A/B Test

Does the fitness test intimidate prospective members?

Daini Wang

2018-07-12

A/B Test Summary

- Objective:
  - To decide if a visitor who is asked to take a fitness test with a personal trainer will affect his/her decision to purchase the membership of Muscle Hub.
- Test Groups:
  - Group A: have a fitness test with a personal trainer
  - Group B: do not have a fitness test with a personal trainer
- Hypothesis test selection
  - Chi Square Test with 95% confidence level
    - Dataset is categorical: submit application or not; purchase membership or not
    - Compare between two categorical dataset, not between a categorical dataset to some expectation.

A/B Test Dataset

Test period of time

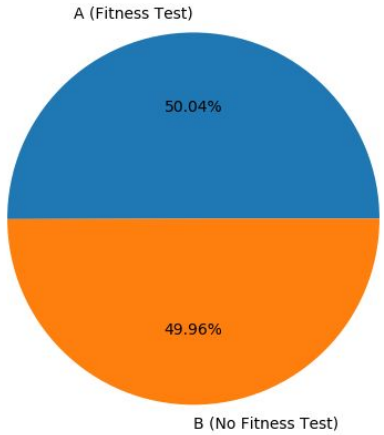
- after 2017-07-01

Sample Size: 5004

- Group A size: 2504
- Group B size: 2500

Data Funnel:

- Visitors: 5007
- Applications: 575
- Purchases: 450



Test Group	Visitors	Applications	Purchases
A	2504	250	200
B	2500	325	250
Total	5007	575	450

A/B Test #1 (visitors ⟶ applications)

From the table on the top left, it seems that more visitors from group B, without fitness tests, turned in an application. So we perform a hypothesis test between two groups to see if the difference is statistically significant.

Null Hypothesis: There is no statistically significant difference between group A and group B for visitors to pick up applications.

Alternative Hypothesis: There is statistically significant difference between group A and group B for visitors to pick up applications.

Test Group	Number of Applications	Number of No Application	Total Visitors	Applications/Visitors (%)
A	250	2254	2504	9.98%
B	325	2175	2500	13.00%

Test Result:

- P-value: 0.00096 < α-value: 0.05
- Reject Null Hypothesis

There is statistically significant difference between Group A and Group B, which can be inferred that no fitness tests with a personal trainer may lead to more applicants for gym memberships.

A/B Test #2 (applications → purchases)

From the table on the top left, if people picked up an application, it seems that more people from group A, with fitness tests, purchased memberships. So we perform a hypothesis test between two groups to see if the difference is statistically significant.

Null Hypothesis: There is no statistically significant difference between group A and group B for applicants to make purchases.

Alternative Hypothesis: There is statistically significant difference between group A and group B for applicants to make purchases.

Test Group	Number of Purchases	Number of No Purchases	Total Applications	Purchases/Applications (%)
A	200	50	350	80.00%
B	250	75	325	76.92%

Test Result:

- P-value: 0.4325 > α-value: 0.05
- Cannot reject Null Hypothesis

There is no statistically significant difference between Group A and Group B, which can be inferred that if people picked up an application, the fitness test does not make significant differences in purchasing memberships or not.

A/B Test #3 (visitors → purchases)

From the table on the top left, it seems that more visitors from group B, without fitness tests, purchased memberships. So we perform a hypothesis test between two groups to see if the difference is statistically significant.

Null Hypothesis: There is no statistically significant difference between group A and group B for visitors to make purchases.

Alternative Hypothesis: There is statistically significant difference between group A and group B for visitors to make purchases.

Test Group	Number of Purchases	Number of No Purchases	Total Visitors	Purchases/Visitors (%)
A	200	2304	2504	7.987%
B	250	2250	2500	10.00%

Test Result:

- P-value: 0.0147 < α-value: 0.05
- Reject Null Hypothesis

There is statistically significant difference between Group A and Group B, which can be inferred that no fitness tests with a personal trainer may lead to more membership purchases for Muscle Hub.

Qualitative Data

There are 4 brief interview notes from the gym visitors who participated in the A/B test:

- How do they think of the fitness test:
  - 1 visitors like it: can track the improvements
  - 3 visitors do not like it:
    - 2 visitors: too intense
    - 1 visitors: did not state the reason
- How do they know about Muscle Hub:
  - Ad from BookFace
  - Recommended from coworker
- What do they like about Muscle Hub:
  - Friendly staff
  - Efficient sign-up process
  - No accosted to sell
  - Cleanness

Recommendations

- Change the fitness test into voluntary
  - People who like to track improvements can participate
  - People who are scared of the intense test can skip
- Build up referral award program
  - Both referee and referrer can enjoy discounts in the gym
- Maintain the efficiency, friendly atmosphere and clean space
- Set up an Instagram account to expand the influence
- More Bookface ads targeting people who want to get shredded