

MuscleHub A/B Test: Significance of The Fitness Test

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Objective

- An A/B Test was performed to determine if taking a fitness test influences a visitor in their decision to apply for a MuscleHub membership.
- This presentation will:
 - Explore the reasoning behind this test
 - The qualitative results of a significance test
 - Compare results with interview data from visitors
 - Provide a recommendation for MuscleHub moving forward

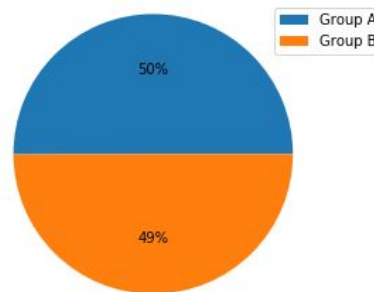
Background

- The current process for a visitor applying for membership to MuscleHub is as follows:
 - Take a fitness test with an instructor.
 - Fill out a membership application.
 - Submit the first month's membership payment (to confirm membership).
- Current management believes that the fitness test step may be intimidating visitors and discouraging them from completing the next two steps.
- An A/B test would divide visitors into two randomly generated groups:
 - A group that takes the fitness test prior to applying
 - A group that skips directly to the application step

A/B Test and Data Summary

- As noted previously, visitors will be randomly assigned to two groups:
 - Group A: Takes a fitness test prior to applying
 - Group B: Skips directly to application step
- The following data was collected for 5004 visitors:
 - Name, Gender, Email, Date of visit
 - Date of fitness test (if applicable)
 - Date of application (if applicable)
 - Date of membership purchase (if applicable)

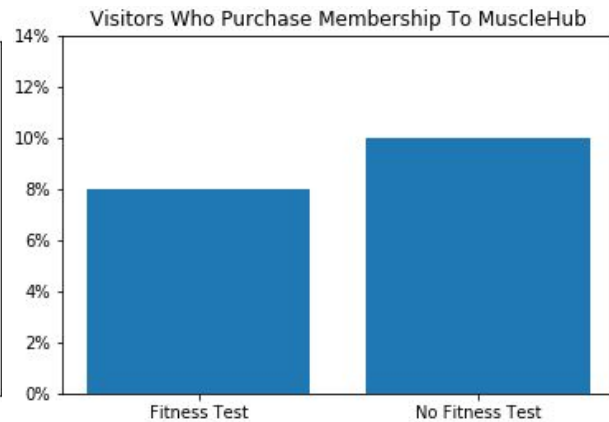
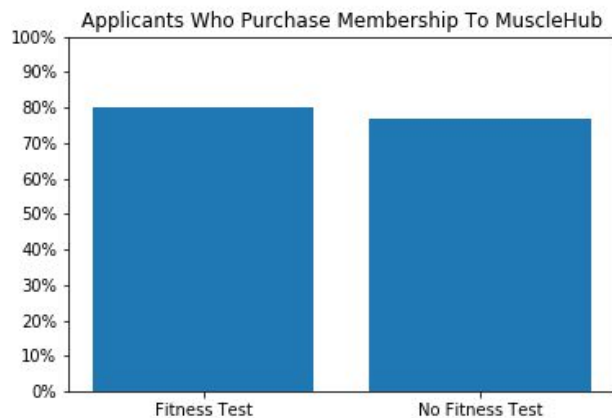
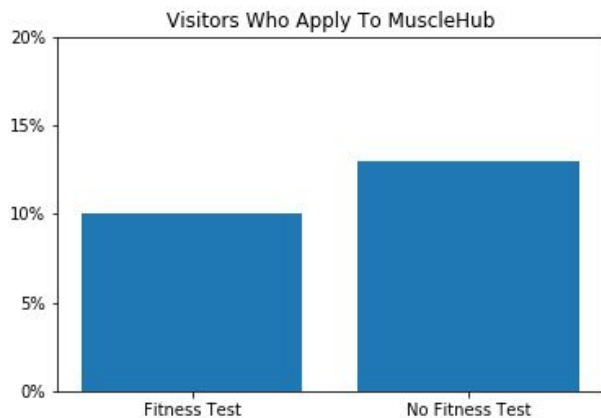
- This data was compiled into a single dataframe, and verified that the groups were an even split.



	first_name	last_name	gender	email	visit_date	fitness_test_date	application_date	purchase_date	ab_test_group
0	Kim	Walter	female	KimWalter58@gmail.com	7-1-17	2017-07-03	None	None	A
1	Tom	Webster	male	TW3857@gmail.com	7-1-17	2017-07-02	None	None	A
2	Edward	Bowen	male	Edward.Bowen@gmail.com	7-1-17	None	2017-07-04	2017-07-04	B
3	Marcus	Bauer	male	Marcus.Bauer@gmail.com	7-1-17	2017-07-01	2017-07-03	2017-07-05	A
4	Roberta	Best	female	RB6305@hotmail.com	7-1-17	2017-07-02	None	None	A

A/B Test Results

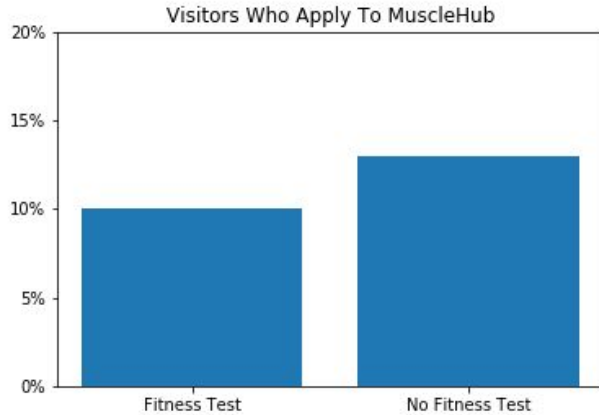
- The difference between each group (A = Fitness Test, B = No Fitness Test) was plotted at each step of the process:
 - Percent who applied
 - Percent who purchased membership (given that they applied)
 - Percent who purchased a membership (of all visitors)



A/B Test Significance

- From the bar charts, it seemed as though there may be a significant difference between the Fitness Test and Non-Fitness test groups at some steps.
- A Chi-Squared test was performed to determine significance.
 - Run on categorical data (i.e. observations of different groups or conditions, not averages)
 - Compares observed groups and see if there is a difference between them
 - Operates under a null hypothesis that there is no difference between the two observed groups (in this case the Fitness Test vs Non-Fitness Test groups)
 - A p-value of **less than 0.05** means one can reject the null-hypothesis (i.e. there is a significant difference between the observed groups)
- Specifically a SciPy Chi-Squared Contingency Test was performed

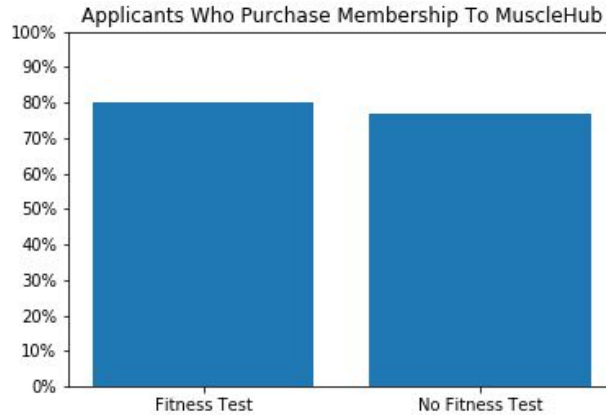
A/B Chi Squared Results



Fitness Test: 10% Applied
No Fitness Test: 13% Applied

Chi-Squared p-Value: **0.000965**

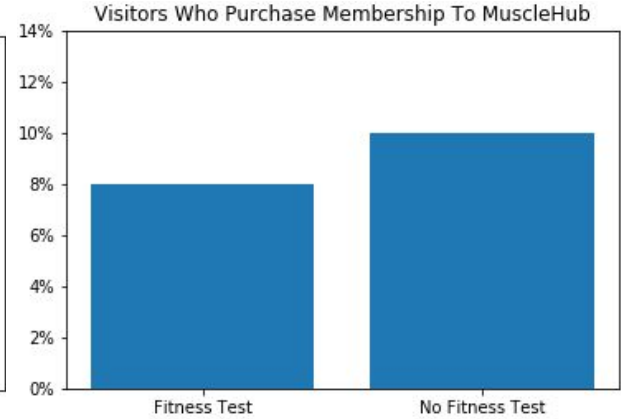
We reject the null hypothesis, there is a **significant** difference between the groups.



Fitness Test: 80% Purchased
No Fitness Test: 77% Purchased

Chi-Squared p-Value: 0.806

We do not reject the null hypothesis; there is no significant difference between the groups.



Fitness Test: 8% Purchased
No Fitness Test: 10% Purchased

Chi-Squared p-Value: **0.0147**

We reject the null hypothesis, there is a **significant** difference between the groups.

Interviews With Visitors

“I always wanted to work out like all of the shredded people on the fitness accounts I see on Instagram, but I never really knew how to start. ***MuscleHub’s introductory fitness test was super helpful for me!*** After taking the fitness test, I had to sign up and keep coming back so that I could impress my trainer Rachel with how much I was improving!” - Cora, 23, Hoboken

“When I walked into MuscleHub I wasn’t accosted by any personal trainers trying to sell me some mumbo jumbo, which I really appreciated. ***Down at LiftCity they had me doing burpees 30 seconds after I walked in the door and I was like “woah guys slow your roll, this is TOOOO much for Jesse!”*** I still ended up not signing up for a membership because the weight machines had all those sweat stains on them and you know, no thanks.” - Jesse, 35, Gowanes

“I took the MuscleHub fitness test because my coworker Laura recommended it. Regretted it.” - Sonny, 26, Brooklyn

“I saw an ad for MuscleHub on BookFace and thought I'd check it out! The people there were suuuuuper friendly and the whole sign-up process took a matter of minutes. ***I tried to sign up for LiftCity last year, but the fitness test was way too intense. This is my first gym membership EVER, and MuscleHub made me feel welcome.***” - Shirley, 22, Williamsburg

Summary and Recommendations

- Looking at the number of visitors who purchased membership, assuming they filled out an application, there is no significant difference between visitors who took a fitness test and visitors who didn't.
- However when looking at the number of visitors who even filled out an application, or just the total number of visitors who purchased a membership overall, there is a significant difference between the two groups. Specifically, the group who took a fitness test had an overall lower percentage of applications and as a result membership purchases.
 - These conclusions are supported by interviews with some visitors (3 of the 4 made a comment about how the lack of a fitness test was encouraging, or a fitness test discouraged them. Only 1 liked the fitness test and still bought a membership).

Overall, the recommendation to MuscleHub would be to not require a fitness test. Perhaps it can still be offered as an option, or available upon request, but overall no fitness test will likely boost membership.