

# MuscleHub A/B Test Results

Does Membership Increase If The Fitness Test is Removed?

# The Problem

# Optimizing the Membership Process

Current Process for MuscleHub Membership:

- Take a Fitness Test with a Personal Trainer
- Fill Out an Application
- Send in First Month's Payment

**Does the Fitness Test Intimidate Potential Members?**



# Optimizing the Membership Process

Proposed A/B Test Setup:

## A. Same Procedure

- Fitness Test
- Application
- Payment

## B. Skip Fitness Test

- Application
- Payment



# Hypothesis:

VISITORS IN GROUP B WILL  
BE MORE LIKELY TO  
PURCHASE A MEMBERSHIP

# Interviews

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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 T0000 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

# Interviews


I took the **MuscleHub fitness test** because my coworker Laura recommended it. **Regretted it.**

- Sonny "Dad Bod", 26, Brooklyn

I saw an ad for MuscleHub on BookFace and thought I'd check it out! The people there were suuuuper 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





The fitness test is  
mostly perceived as  
negative

# Dataset and Experimental Setup

# Dataset

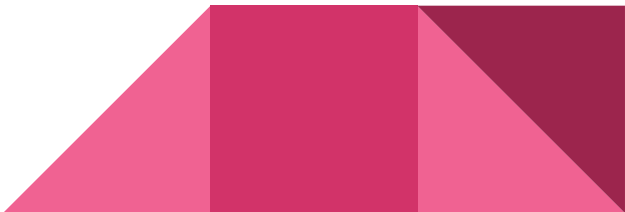
The dataset consists of the following:

- Quantitative Databases
  - `visits.csv` - Visitors' names, contact info, and date of visit
  - `fitness_test.csv` - Date of the fitness test
  - `applications.csv` - Date of application
  - `purchases.csv` - Date of membership payment
- Qualitative
  - `interviews.txt` - Interviews with the visitors
    - Discussed in previous section

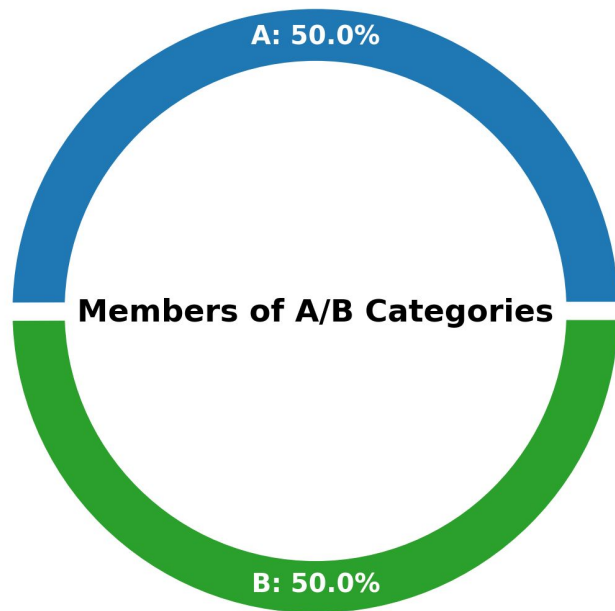


# Dataset

The databases were joined to provide a complete set of data containing:

- First Name
  - Last Name
  - Gender
  - Email
  - Visit
  - Fitness Test
  - Application
  - Purchase
- 

# A/B Group Sizes



**A: Fitness Test (Untreated)**

2504

**B: No Fitness Test (Treated)**

2500



Both A/B Groups  
were approximately  
equal in size

# Hypothesis Testing

# Hypotheses

Three Hypotheses Tested:

- Group B turned in Applications at a higher rate than Group A
- Group A purchased a membership after they applied at a higher rate than Group B
- Group B has a higher rate of membership than Group A

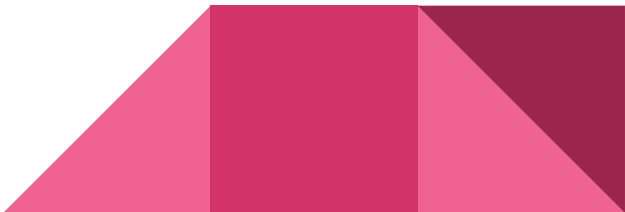




# Statistical Significance

- Binomial Test
  - $H_0$ : There is no difference in the expected and observed rates (probabilities)
  - Exact Test
- $X^2$  Test
  - $H_0$ : There is no relationship between the two rates (probabilities)
  - Approximation (applicable to large data sets)
- Significance level:  $p < 0.05$

Both were used (since they test different hypotheses) and expected to yield the same results.



# Hypothesis Test Results

Three Hypotheses Tested:

- Group B turned in Applications at a higher rate than Group A
  - **Significant**
- Group A purchased a membership after they applied at a higher rate than Group B
  - **Not Significant**
- Group B has a higher rate of membership than Group A
  - **Significant**



# +25% Lift

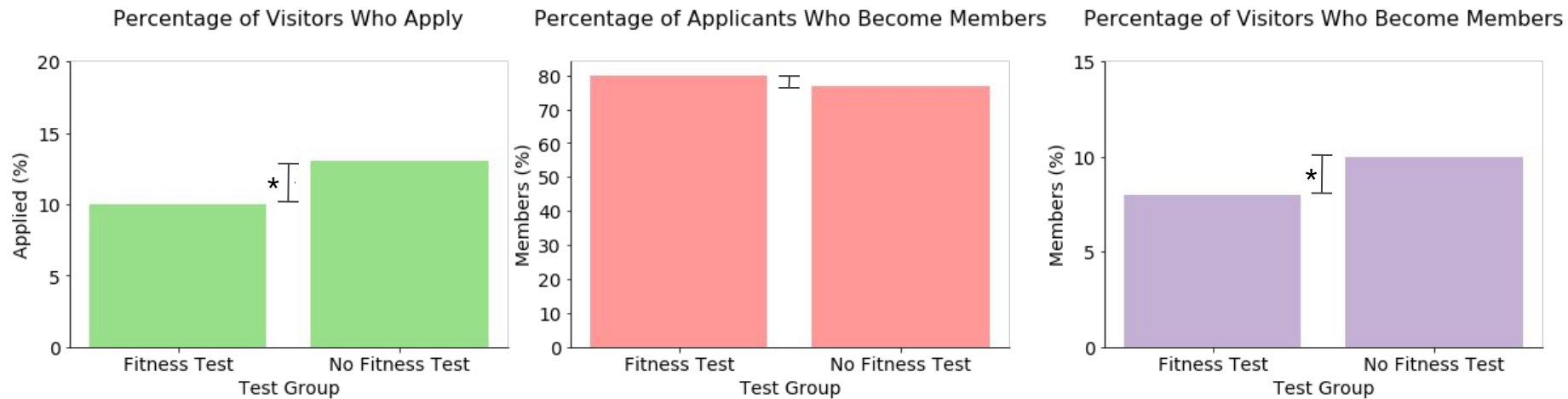
Group B had a 2.0 percentage point increase in purchase corresponding to a 25% lift in membership payments.

A: 7.99 % Purchase | B: 10.00% Purchase

Group B applied  
and became  
members at a  
greater rate than  
Group A

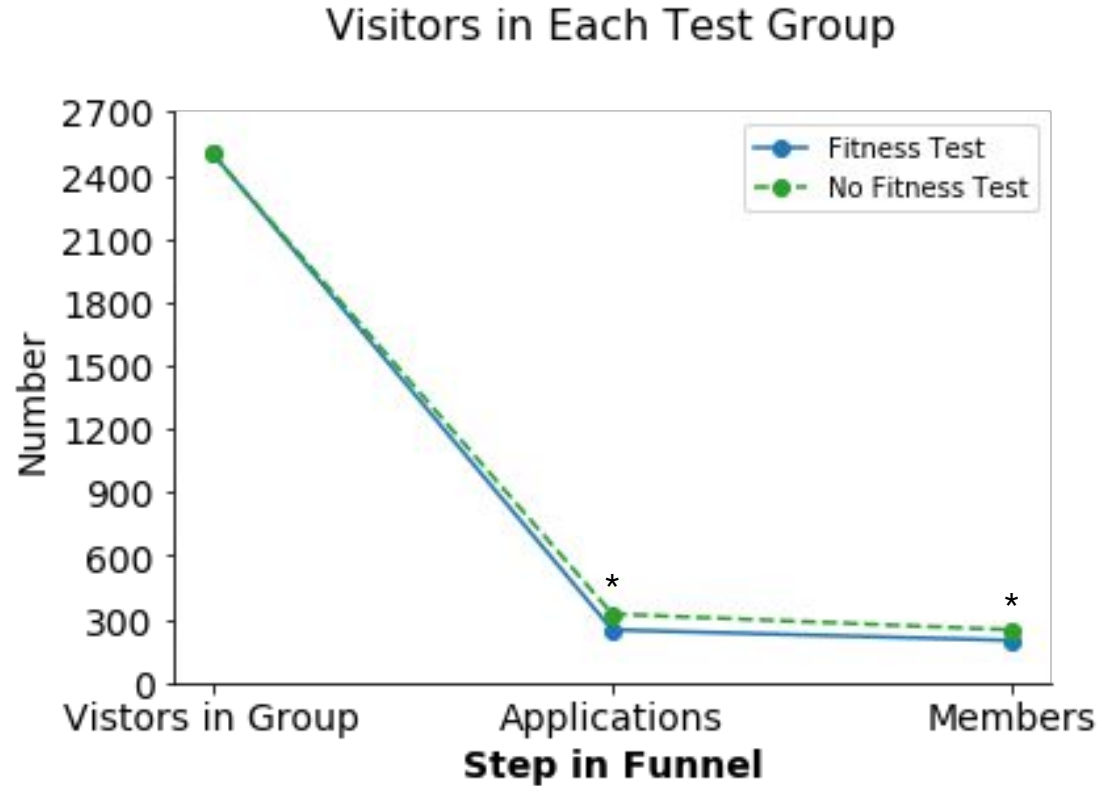
# Results

# Acquisition Funnel



\* Significant Difference

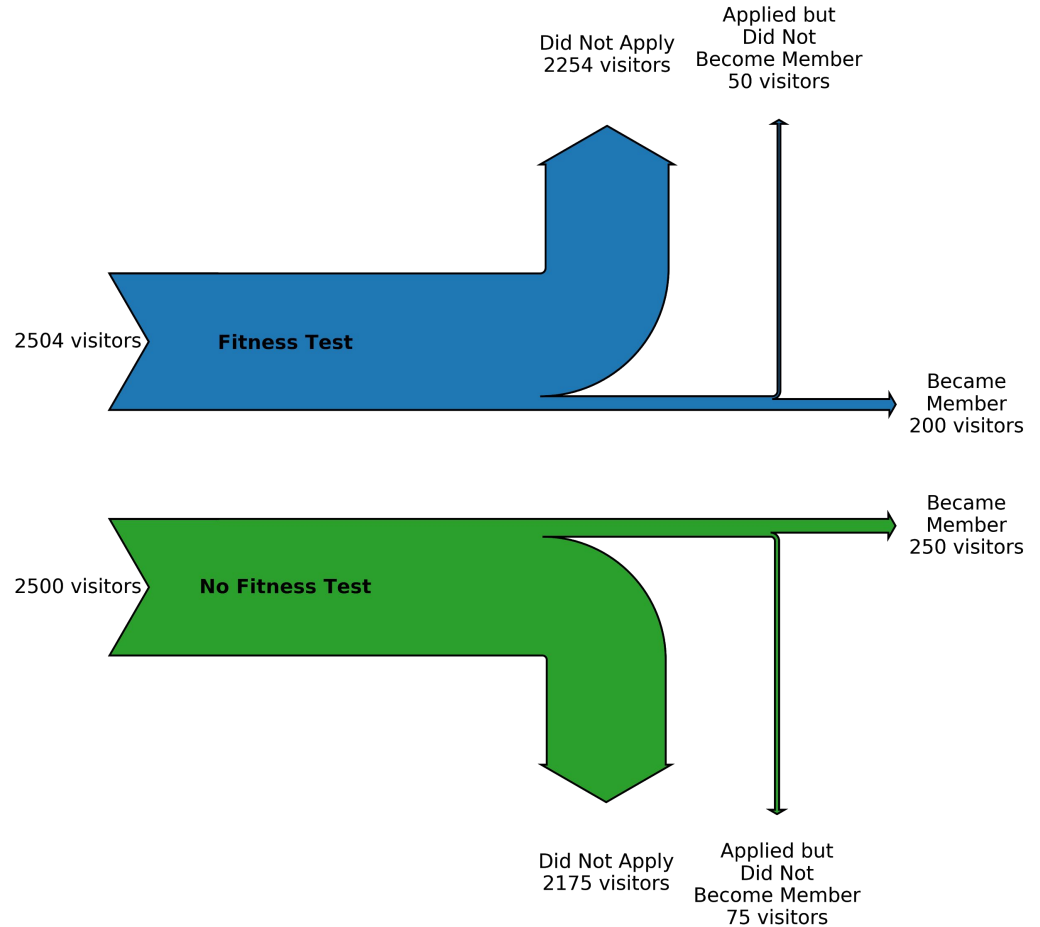
# Acquisition Funnel: Line Chart



\* Significant Difference

# Acquisition Funnel: Sankey Diagram

Flow Diagram of MuscleHub Visitors





# **Recommendation:**

MUSCLEHUB SHOULD NOT  
REQUIRE A FITNESS TEST  
BEFORE APPLYING

# Next Steps:

- Determine Lifetime Value of each group
- Should Fitness Test be optional?