

# LAB#6

2025-05-14

## PSTAT 122 Lab 6

### Method

The goal of this lab was to see whether visual cues such as watching a stopwatch or closing your eyes would affect how long someone is able to hold their breath. There are three different conditions:

Control(move normally while breath-holding) Looking at a timer Eyes closed

This was done using a Generalized Randomized Block Design (GRBD), two students were holding the timer which service as the blocks. Each timer was in charge of recording the breath-holding times for the other students. Each student would be randomly assigned to a randomly three treatment conditions using the following R code:

```
sample(c("control", "look at stopwatch", "eyes closed"), 1)
```

This was run for every students by the timer, who then record the breath-holding time under that assigned condition. Then the time would be written on the blackboard.

There were also several technical issues during the experiment. Some students were feeling sick, which likely affected their breath-holding performance and introduced extrea variation into the data. Also, there was a confusion among students about when exactly to stop holding their breath. To fix this, we agreed as a group that everyone would stop at the point of breathing out to keep things consistent. Some timers were slightly delayed in starting or stopping their phone stopwatch. Since we couldn't talk while holding our breath, we all agreed to use a thumbs-up to signal when we were ready to begin. Each observation was recorded with the breath-holding time, the assigned treatment, and the timer(block) who recorded it. These were entered into an excel with columns and down below is the data frame:

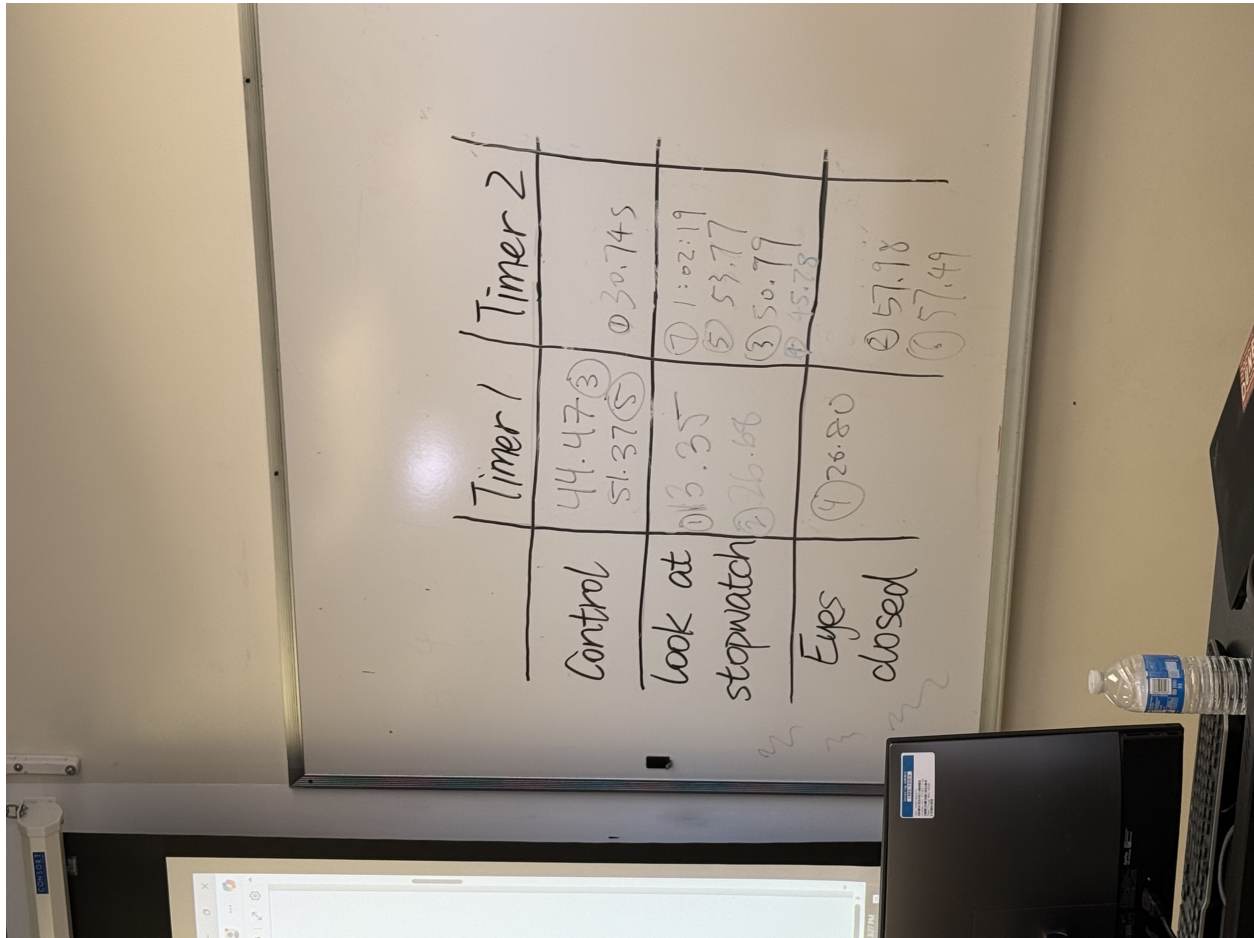
- Time
- Treatment
- Block

```
library(readxl)
breath_df <- read_excel("Lab6_Time.xlsx")
sample(breath_df)
```

```
## # A tibble: 12 x 3
##   Block Treatment      Time
##   <chr>  <chr>      <dbl>
## 1 Time 1 Look at Stop Watch 13.4
## 2 Time 1 Look at Stop Watch 26.7
## 3 Time 1 Control          44.5
```

```
## 4 Time 1 Eyes Closed      26.8
## 5 Time 1 Control          51.4
## 6 Time 2 Control          30.7
## 7 Time 2 Eyes Closed      58.0
## 8 Time 2 Look at Stop Watch 50.8
## 9 Time 2 Look at Stop Watch 45.8
## 10 Time 2 Look at Stop Watch 53.8
## 11 Time 2 EYES Closed     57.5
## 12 Time 2 Look at Stop Watch 62.2
```

```
knitr::include_graphics("/Users/andy/Desktop/UCSBCourses/PSTAT122/LAB6/classLab6.jpeg")
```



```
library(ggplot2)
theme_update(text = element_text(size = 25))

ggplot() +
  geom_point() +
  geom_line()
```

