

# VICTR Lab - Stereotype Threat Graph, Male

Joshua Wei

2024-10-14

```
library(dplyr)

## 
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
## 
##     filter, lag

## The following objects are masked from 'package:base':
## 
##     intersect, setdiff, setequal, union

library(ggplot2)

#Mens's Ankle Monitor(b) Data

PA378 = read.csv("/Users/joshuawei/Downloads/VICTR Lab/Stereotype Threat Analysis/PA378 Test Data/PA378")

secs_df = read.csv("/Users/joshuawei/Downloads/VICTR Lab/Stereotype Threat Analysis/PA378 Test Data/PA378")
secs_df = na.omit(secs_df)
secs_df = secs_df %>%
  filter(Observed.Sec > Real.Sec) %>%
  select("ID", "Real.Sec")

PA378$ID = as.numeric(gsub("[^0-9]", "", PA378$ID)) #change the ID to a regular number

main_df = PA378 %>%
  left_join(secs_df, by = "ID") %>% # Join to get the Real.Sec column
  group_by(ID) %>%
  filter(row_number() <= Real.Sec) %>% # Filter rows based on Real.Sec
  ungroup() %>%
  select(-Real.Sec)

main_df

## # A tibble: 117,209 x 5
##       Seconds Y.axis X.axis Z.axis     ID
##      <dbl>   <dbl> <dbl> <dbl> <dbl>
```

```

##      <int> <int> <int> <int> <dbl>
## 1      0      0      0      0      1
## 2      1      0      0      0      1
## 3      2      0      0      0      1
## 4      3      0      0      6      1
## 5      4      0      0      6      1
## 6      5      0      0      0      1
## 7      6      0      0      0      1
## 8      7      0      0      0      1
## 9      8      5      9     13      1
## 10     9      0      6     17      1
## # i 117,199 more rows

```

```
write.csv(main_df, file = "main.csv")
```

*#Gives me a data with the right amount of seconds*

```
masterfile = read.csv("/Users/joshuawei/Downloads/VICTR Lab/Stereotype Threat Analysis/PA378 Test Data/
```

```
masterfile <- masterfile %>%
  select("ID...1", "Cond") %>%
  rename(ID = "ID...1")
```

```
everything_df = left_join(main_df, masterfile, by= "ID")
```

*#Adds the Conditions into the dataset per ID*

*#X axis*

```
bruce_levels = c(540, 720, 900, 1080, 1260, 1440, 1620, 1800)
```

```
summary_df = everything_df %>%
  group_by(Seconds, Cond) %>%
  summarise(mean = mean(X.axis),
            sd = sd(X.axis),
            .groups = "drop")
summary_df
```

```

## # A tibble: 5,214 x 4
##      Seconds Cond      mean      sd
##      <int> <chr>    <dbl>    <dbl>
## 1      0 Control  18.4    45.6
## 2      0 Lift     26.8    72.2
## 3      0 Threat    39.5   61.8
## 4      1 Control  27.4    44.4
## 5      1 Lift     29.8    55.8
## 6      1 Threat    38.2   55.5
## 7      2 Control  32.7    54.2
## 8      2 Lift     28.6    49.1
## 9      2 Threat    38.2   51.2
## 10     3 Control  33.2    57.0
## # i 5,204 more rows

```

```

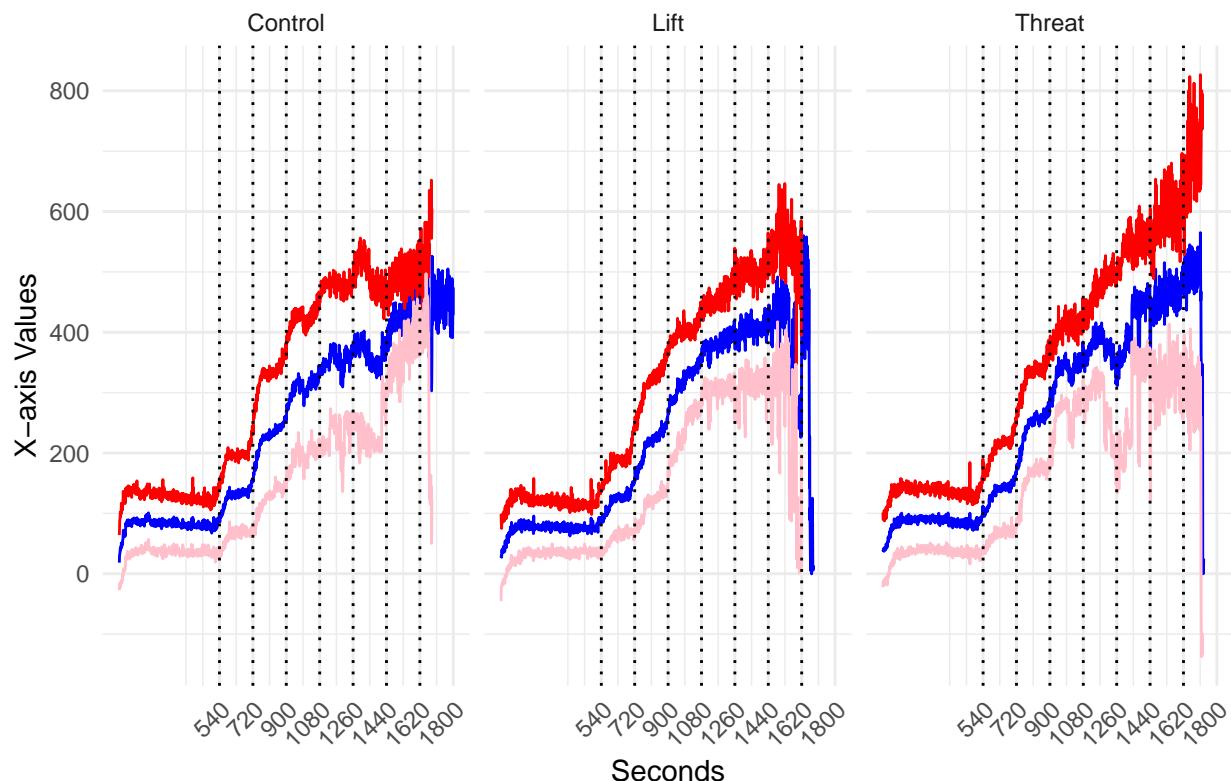
ggplot(summary_df) +
  geom_line(aes(x = Seconds, y = mean), color = "blue") +
  geom_line(aes(x = Seconds, y = mean + sd), color = "red") + #one sd above the mean
  geom_line(aes(x = Seconds, y = mean - sd), color = "pink") + #one sd below the mean
  labs(title = "Mean and Standard Deviation over Time",
       x = "Seconds",
       y = "X-axis Values") +
  theme_minimal() +
  facet_wrap(~Cond) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(min(summary_df$Seconds), max(summary_df$Seconds)),
    breaks = bruce_levels) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

```

## Warning: Removed 6 rows containing missing values ('geom\_line()').  
 ## Removed 6 rows containing missing values ('geom\_line()').

## Warning: Removed 3 rows containing missing values ('geom\_vline()').

## Mean and Standard Deviation over Time



```

ggplot(summary_df) +
  geom_line(aes(x = Seconds, y = mean), color = "blue") +
  geom_line(aes(x = Seconds, y = mean + sd), color = "red") + #one sd above the mean
  geom_line(aes(x = Seconds, y = mean - sd), color = "pink") + #one sd below the mean

```

```

  labs(title = "Mean and Standard Deviation over Time",
       x = "Seconds",
       y = "X-axis Values") +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(min(summary_df$Seconds), max(summary_df$Seconds)),
    breaks = bruce_levels) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

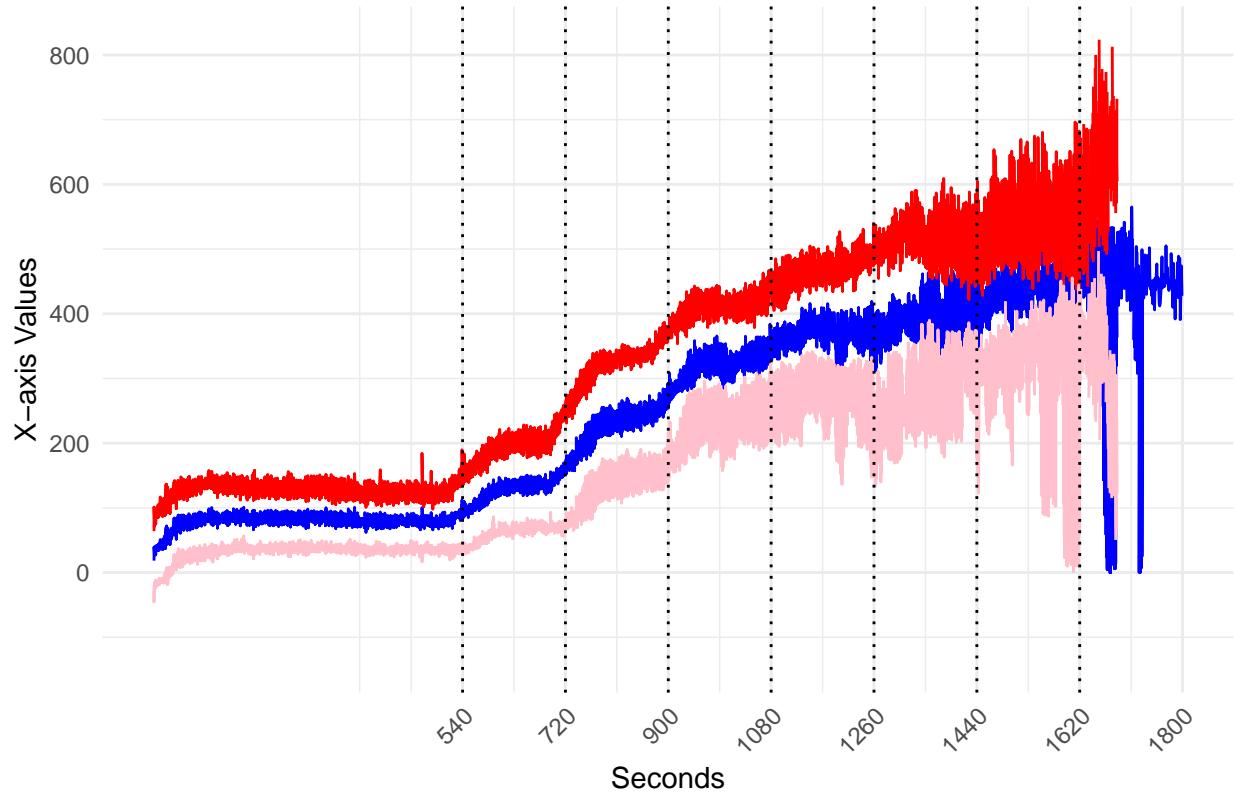
## Warning: Removed 82 rows containing missing values ('geom_line()').

## Warning: Removed 82 rows containing missing values ('geom_line()').

## Warning: Removed 1 rows containing missing values ('geom_vline()').

```

Mean and Standard Deviation over Time



```

#Y axis

bruce_levels = c(540, 720, 900, 1080, 1260, 1440, 1620, 1800)

summary_df = everything_df %>%
  group_by(Seconds, Cond) %>%
  summarise(mean = mean(Y.axis),

```

```

sd = sd(Y.axis),
.groups = "drop")

ggplot(summary_df) +
  geom_line(aes(x = Seconds, y = mean), color = "blue") +
  geom_line(aes(x = Seconds, y = mean + sd), color = "red") + #one sd above the mean
  geom_line(aes(x = Seconds, y = mean - sd), color = "pink") + #one sd below the mean
  labs(title = "Mean and Standard Deviation over Time",
       x = "Seconds",
       y = "Y-axis Values") +
  theme_minimal() +
  facet_wrap(~Cond) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(min(summary_df$Seconds), max(summary_df$Seconds)),
    breaks = bruce_levels) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

```

```

## Warning: Removed 6 rows containing missing values ('geom_line()').
## Removed 6 rows containing missing values ('geom_line()').

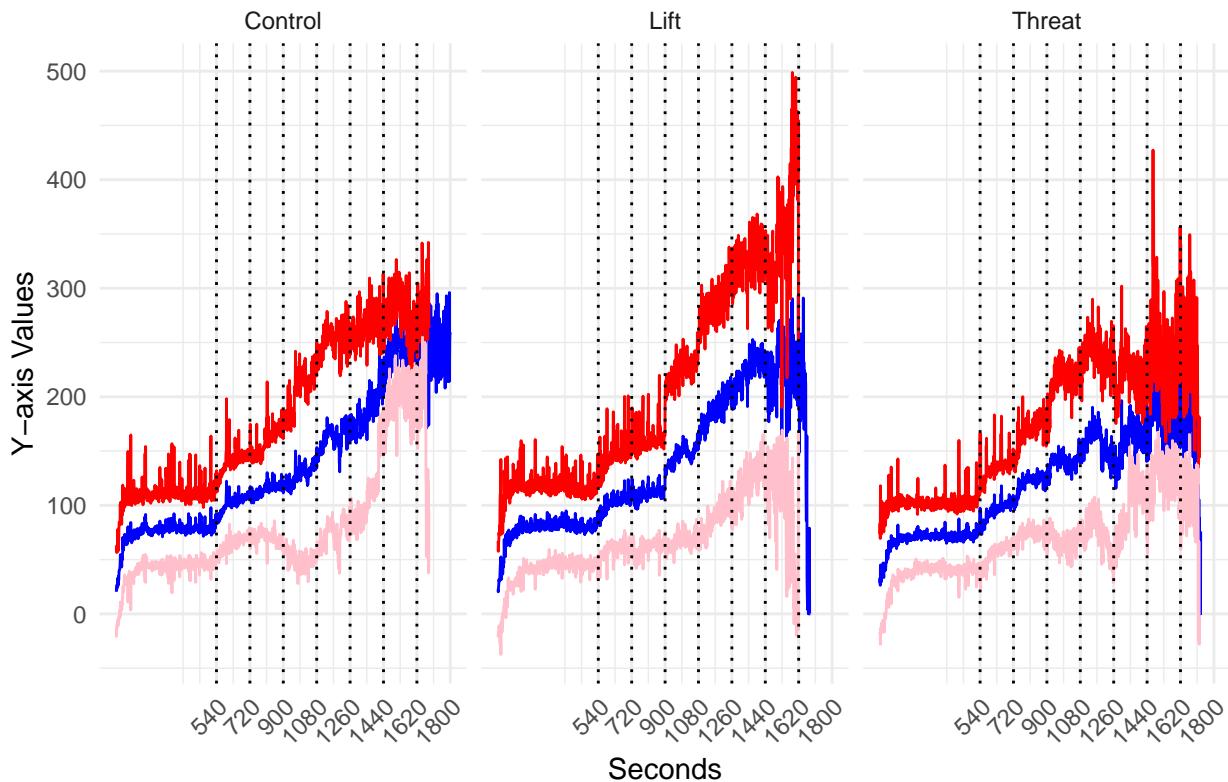
```

```

## Warning: Removed 3 rows containing missing values ('geom_vline()').

```

## Mean and Standard Deviation over Time



```

ggplot(summary_df) +
  geom_line(aes(x = Seconds, y = mean), color = "blue") +
  geom_line(aes(x = Seconds, y = mean + sd), color = "red") + #one sd above the mean
  geom_line(aes(x = Seconds, y = mean - sd), color = "pink") + #one sd below the mean
  labs(title = "Mean and Standard Deviation over Time",
       x = "Seconds",
       y = "Y-axis Values") +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(min(summary_df$Seconds), max(summary_df$Seconds)),
    breaks = bruce_levels) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

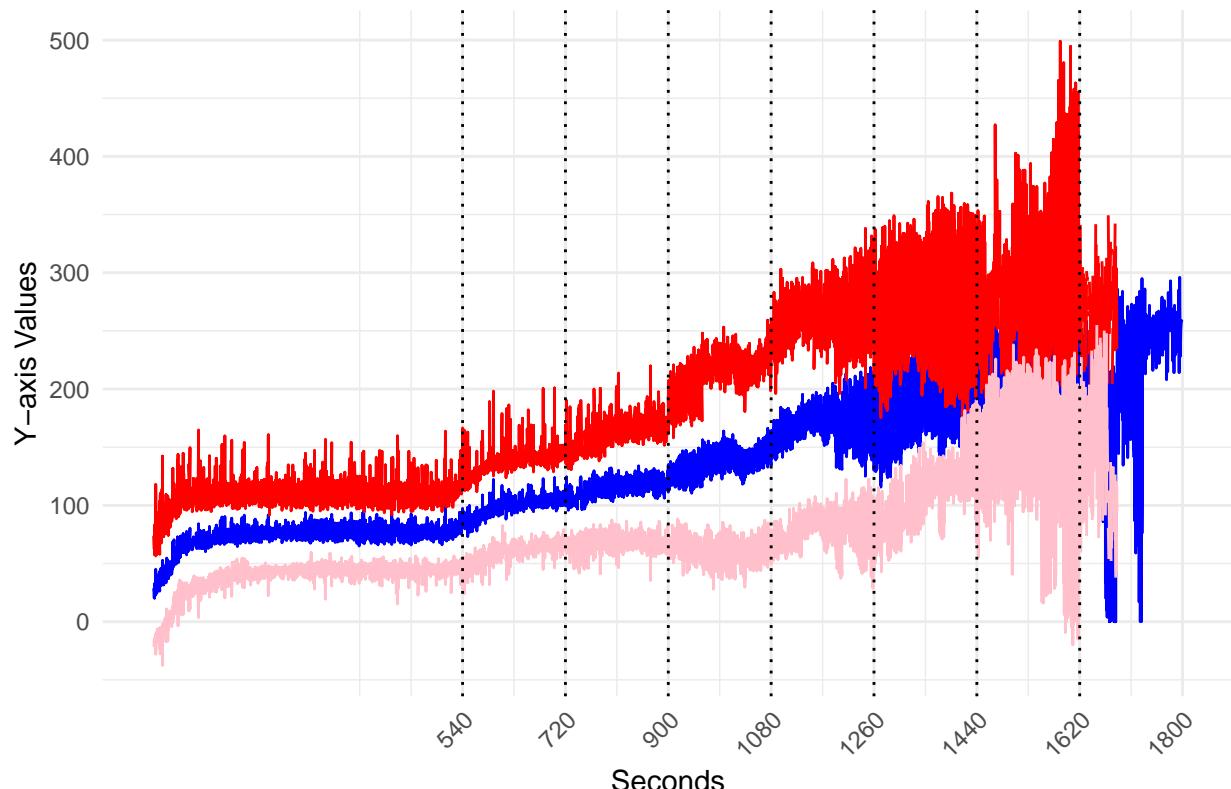
```

## Warning: Removed 82 rows containing missing values ('geom\_line()').

## Warning: Removed 82 rows containing missing values ('geom\_line()').

## Warning: Removed 1 rows containing missing values ('geom\_vline()').

## Mean and Standard Deviation over Time



#Z axis

```
bruce_levels = c(540, 720, 900, 1080, 1260, 1440, 1620, 1800)
```

```

summary_df = everything_df %>%
  group_by(Seconds, Cond) %>%
  summarise(mean = mean(Z.axis),
            sd = sd(Z.axis),
            .groups = "drop")

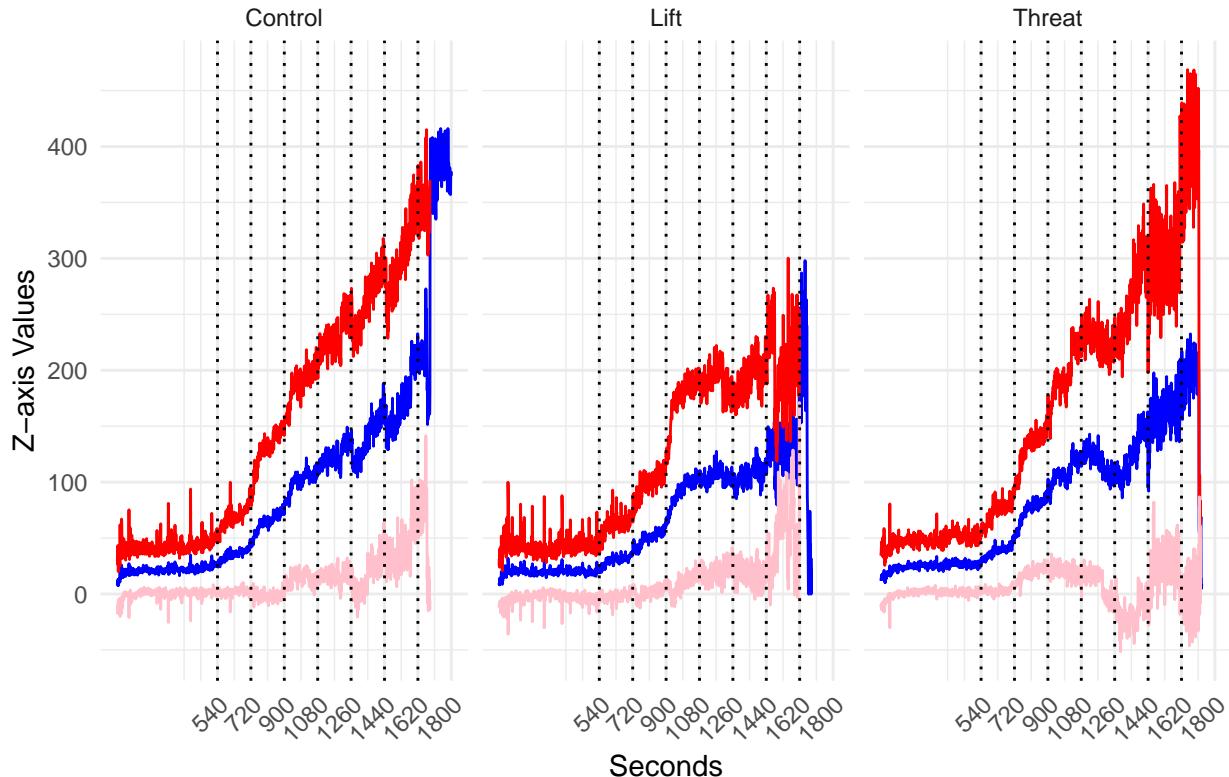
ggplot(summary_df) +
  geom_line(aes(x = Seconds, y = mean), color = "blue") +
  geom_line(aes(x = Seconds, y = mean + sd), color = "red") + #one sd above the mean
  geom_line(aes(x = Seconds, y = mean - sd), color = "pink") + #one sd below the mean
  labs(title = "Mean and Standard Deviation over Time",
       x = "Seconds",
       y = "Z-axis Values") +
  theme_minimal() +
  facet_wrap(~Cond) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(min(summary_df$Seconds), max(summary_df$Seconds)),
    breaks = bruce_levels) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

## Warning: Removed 6 rows containing missing values ('geom_line()').
## Removed 6 rows containing missing values ('geom_line()').

## Warning: Removed 3 rows containing missing values ('geom_vline()').

```

## Mean and Standard Deviation over Time



```

ggplot(summary_df) +
  geom_line(aes(x = Seconds, y = mean), color = "blue") +
  geom_line(aes(x = Seconds, y = mean + sd), color = "red") + #one sd above the mean
  geom_line(aes(x = Seconds, y = mean - sd), color = "pink") + #one sd below the mean
  labs(title = "Mean and Standard Deviation over Time",
       x = "Seconds",
       y = "Z-axis Values") +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(min(summary_df$Seconds), max(summary_df$Seconds)),
    breaks = bruce_levels) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

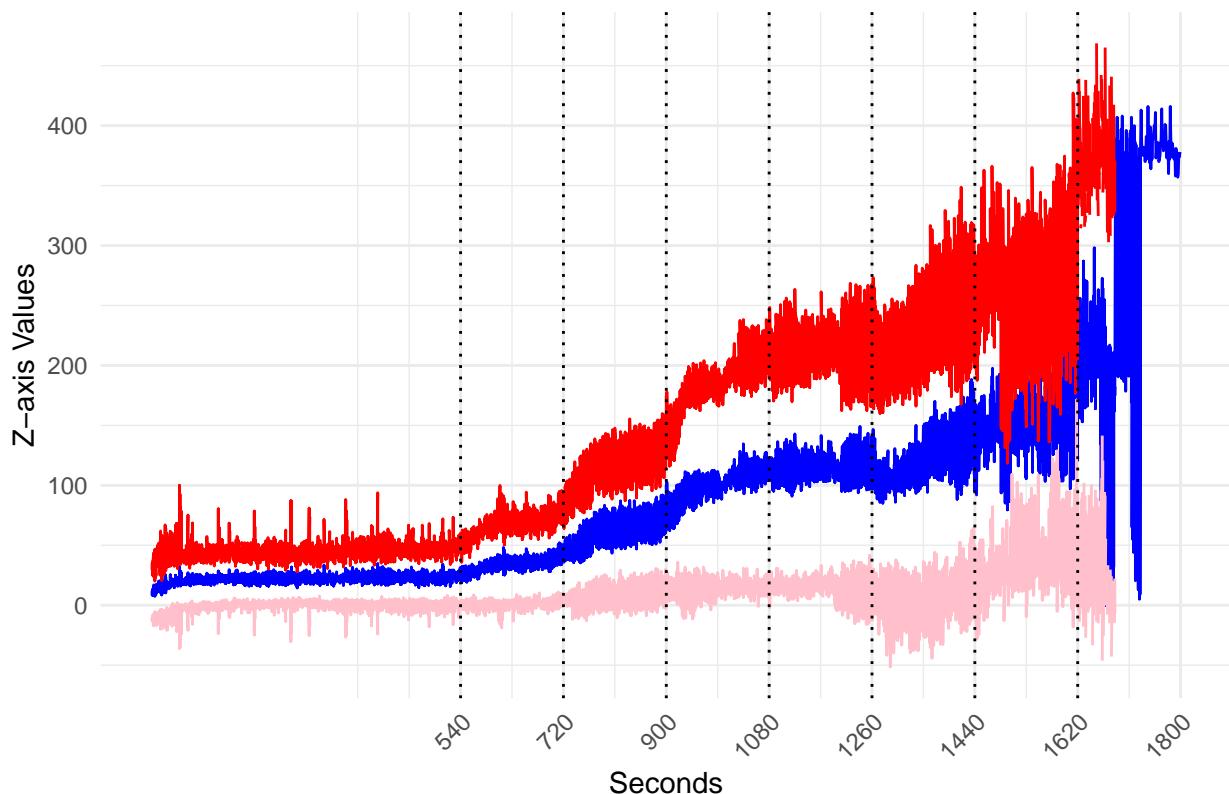
```

## Warning: Removed 82 rows containing missing values ('geom\_line()').

## Warning: Removed 82 rows containing missing values ('geom\_line()').

## Warning: Removed 1 rows containing missing values ('geom\_vline()').

## Mean and Standard Deviation over Time



#X Graph

```

everything_df %>%
  ggplot(aes(x = Seconds, y = X.axis)) +

```

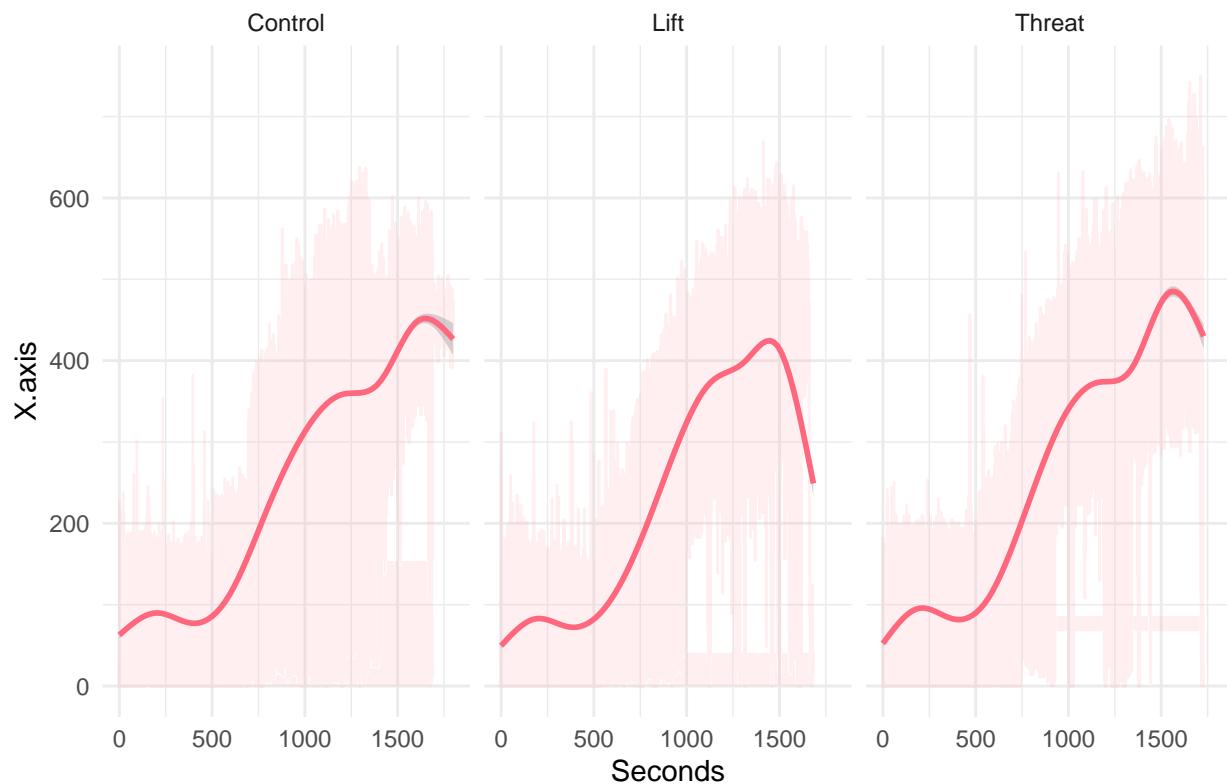
```

geom_line(position = position_jitter(width = 0.2), alpha = 0.2, color = "#FFB3BA") +
  geom_smooth(se = TRUE, linetype = "solid", color = "#FF677D") +
  facet_wrap(~Cond) +
  labs(title = "Scatter Plot of X.axis by Seconds",
       x = "Seconds",
       y = "X.axis") +
  theme_minimal()

```

## `geom\_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'

### Scatter Plot of X.axis by Seconds



#Y Graph

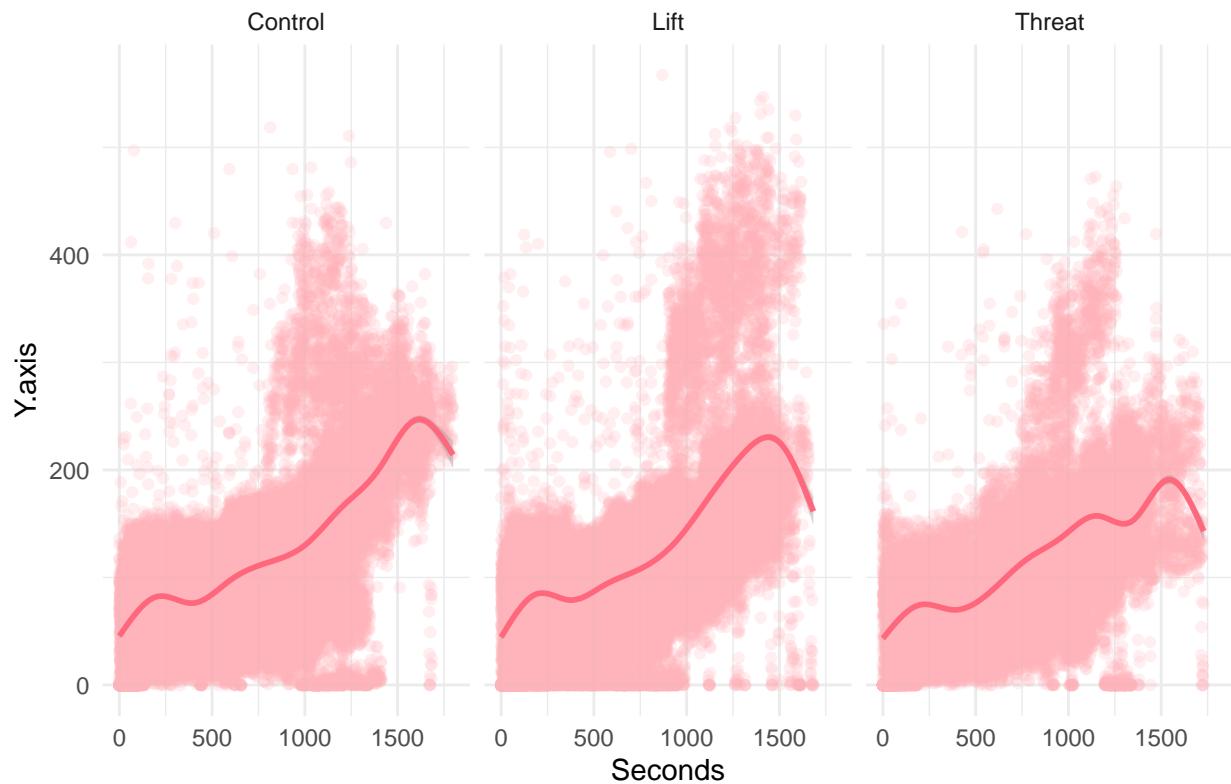
```

everything_df %>%
  ggplot(aes(x = Seconds, y = Y.axis)) +
  geom_point(position = position_jitter(width = 0.2), alpha = 0.2, color = "#FFB3BA") +
  geom_smooth(se = TRUE, linetype = "solid", color = "#FF677D") +
  facet_wrap(~Cond) +
  labs(title = "Scatter Plot of Y.axis by Seconds",
       x = "Seconds",
       y = "Y.axis") +
  theme_minimal()

```

## `geom\_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'

## Scatter Plot of Y.axis by Seconds

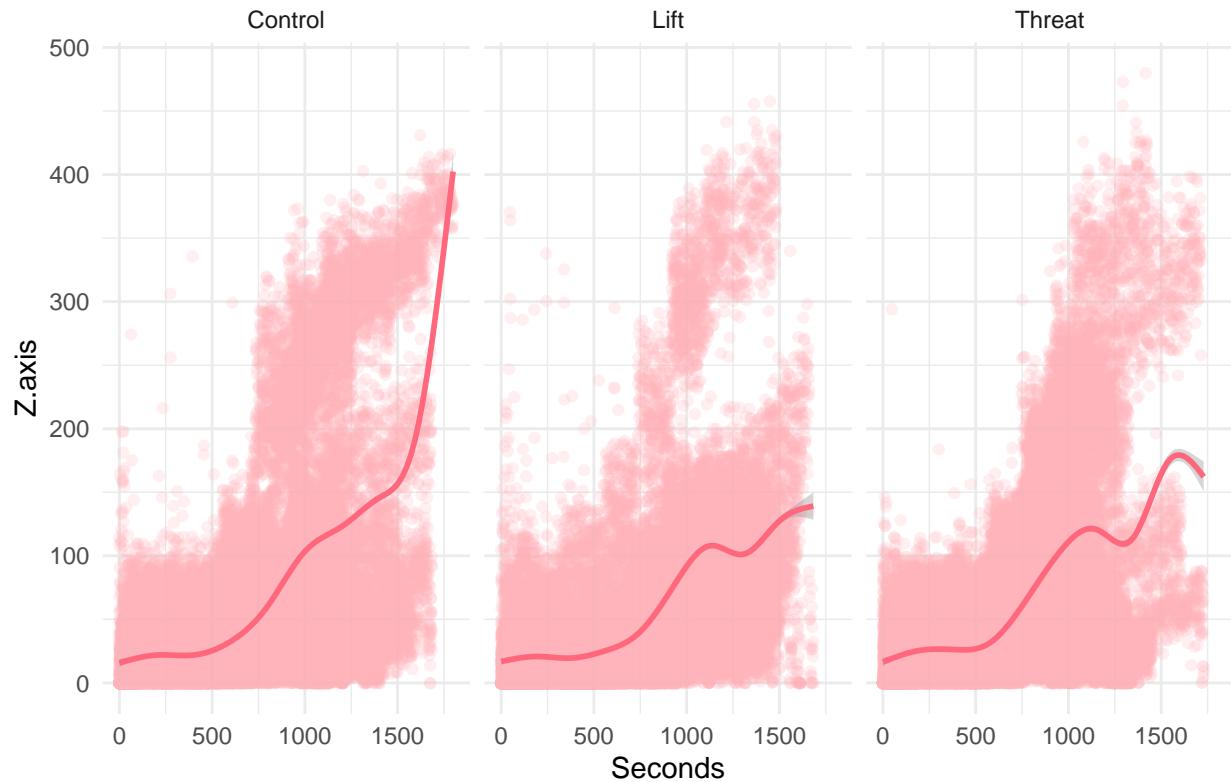


```
#Z Graph
```

```
everything_df %>%
  ggplot(aes(x = Seconds, y = Z.axis)) +
  geom_point(position = position_jitter(width = 0.2), alpha = 0.2, color = "#FFB3BA") +
  geom_smooth(se = TRUE, linetype = "solid", color = "#FF677D") +
  facet_wrap(~Cond) +
  labs(title = "Scatter Plot of Z.axis by Seconds",
       x = "Seconds",
       y = "Z.axis") +
  theme_minimal()
```

```
## `geom_smooth()` using method = 'gam' and formula = 'y ~ s(x, bs = "cs")'
```

## Scatter Plot of Z.axis by Seconds



#X-AXIS

```

condition_colors = c("Control" = "blue", "Lift" = "green", "Threat" = "red")

mean_df = everything_df %>%
  filter(Cond != "") %>%
  group_by(Seconds, Cond) %>%
  summarise(mean = mean(X.axis),
            .groups = "drop")

unique_counts = function(seconds_range) { #function to give me total amount of people in each graph on
  everything_df %>%
    filter(seconds_range[1] <= Seconds, Seconds <= seconds_range[2]) %>%
    summarise(unique_ids = n_distinct(ID)) %>%
    pull(unique_ids)
}

unique_ids_labels <- function(start_seconds, end_seconds) { #amount of people per condition as a graph
  everything_df %>%
    filter(Seconds >= start_seconds & Seconds <= end_seconds) %>%
    group_by(Cond) %>%
    summarise(unique_IDs = n_distinct(ID),
             .groups = "drop") %>%
}

```

```

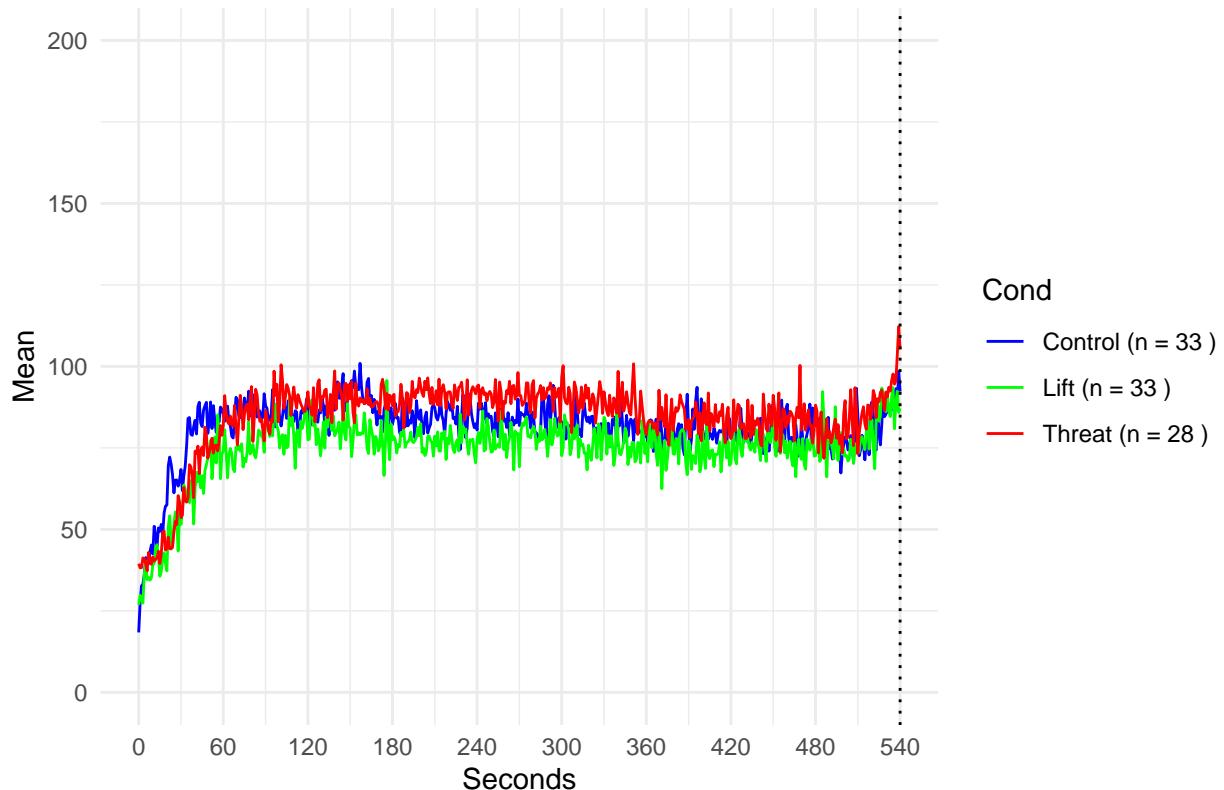
    mutate(label = paste(Cond, "(n =", unique_IDs, ")")) %>%
  pull(label)
}

#Bruce 1
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 1, n = ",unique_counts(c(0,540)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(0,200)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(0,540),
    breaks = c(0,60,120,180,240,300,360,420,480,540)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(0,540))

```

## Warning: Removed 7 rows containing missing values ('geom\_vline()'').

X axis – Bruce Level 1, n = 94



```

#Bruce 2
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +

```

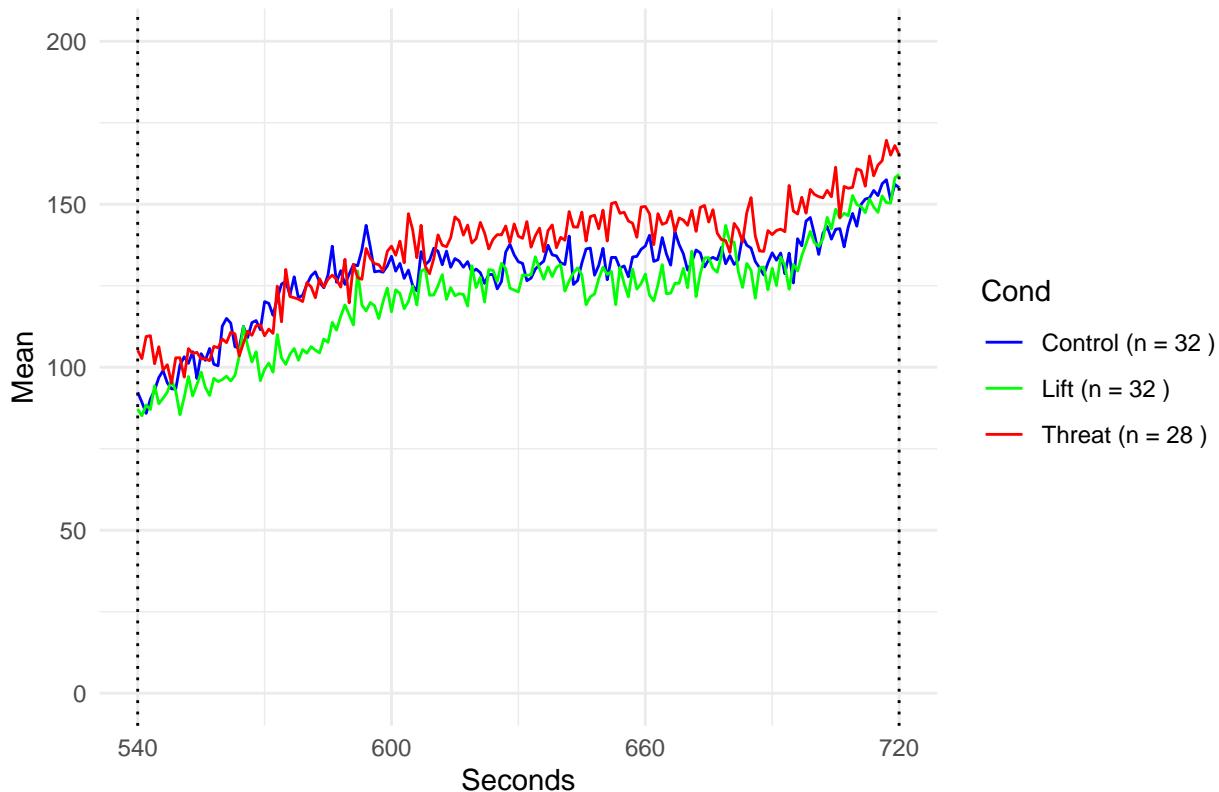
```

geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 2, n = ",unique_counts(c(540,720)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(0,200)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(540,720),
    breaks = c(540,600,660,720)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(540,720))

```

## Warning: Removed 6 rows containing missing values ('geom\_vline()'').

X axis – Bruce Level 2, n = 92



```

#Bruce 3
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 3, n = ",unique_counts(c(720,900)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(100,300)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +

```

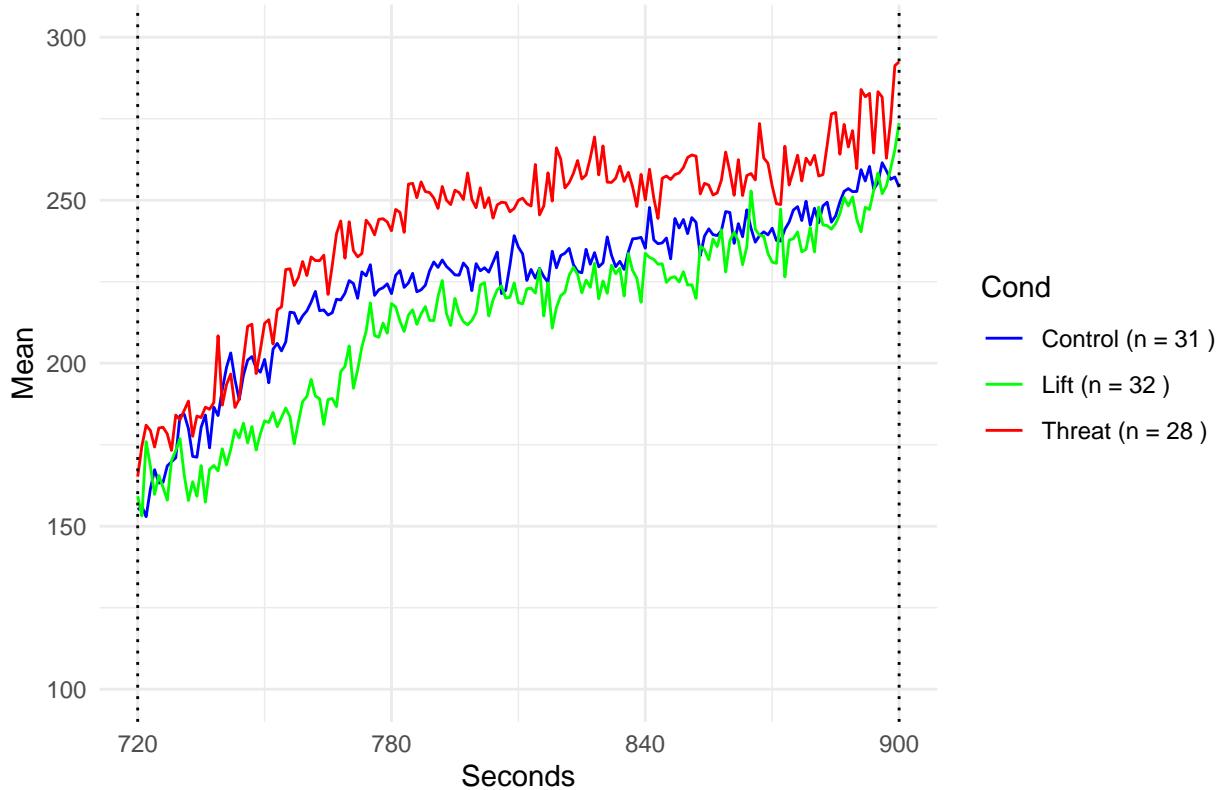
```

scale_x_continuous(
  limits = c(720, 900),
  breaks = c(720,780,840,900)) +
scale_color_manual(values = condition_colors,
                    labels = unique_ids_labels(720,900))

```

## Warning: Removed 6 rows containing missing values ('geom\_vline()').

X axis – Bruce Level 3, n = 91



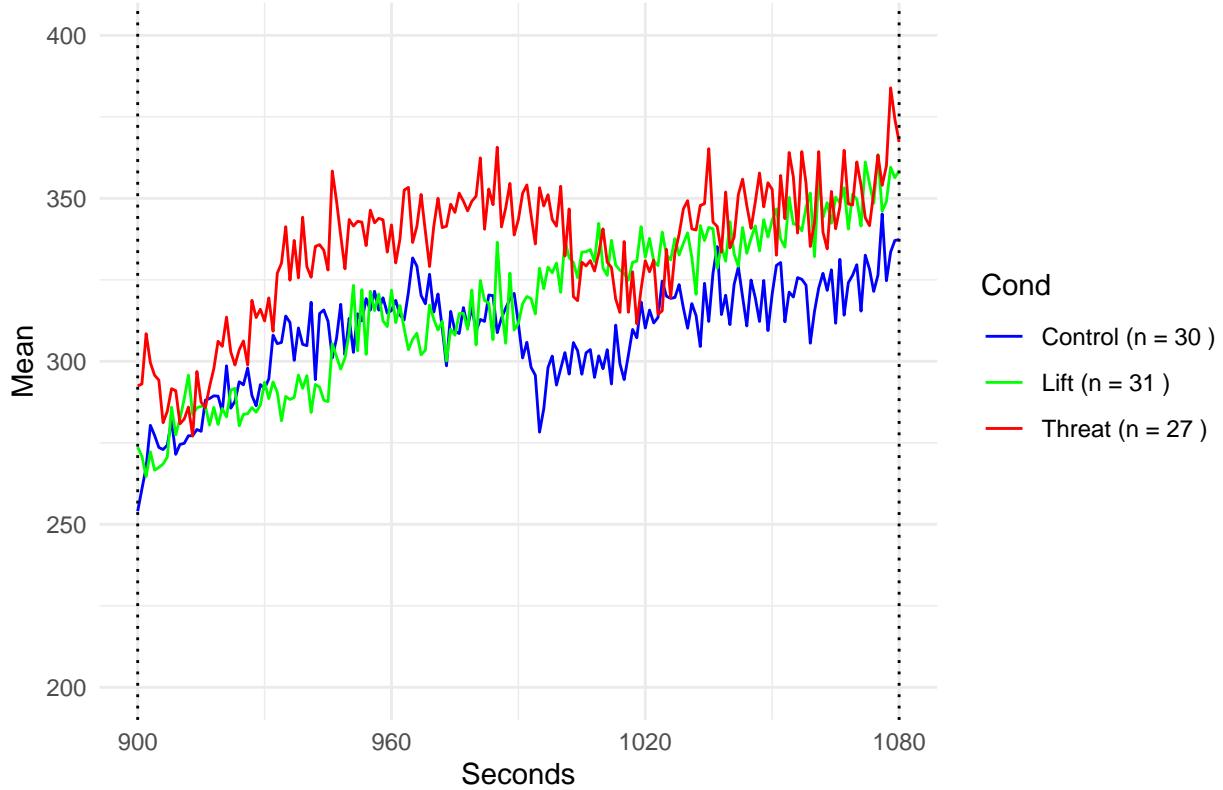
```

#Bruce 4
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 4, n = ",unique_counts(c(900,1080)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(200,400)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(900,1080),
    breaks = c(900,960,1020,1080)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(900,1080))

```

## Warning: Removed 6 rows containing missing values ('geom\_vline()').

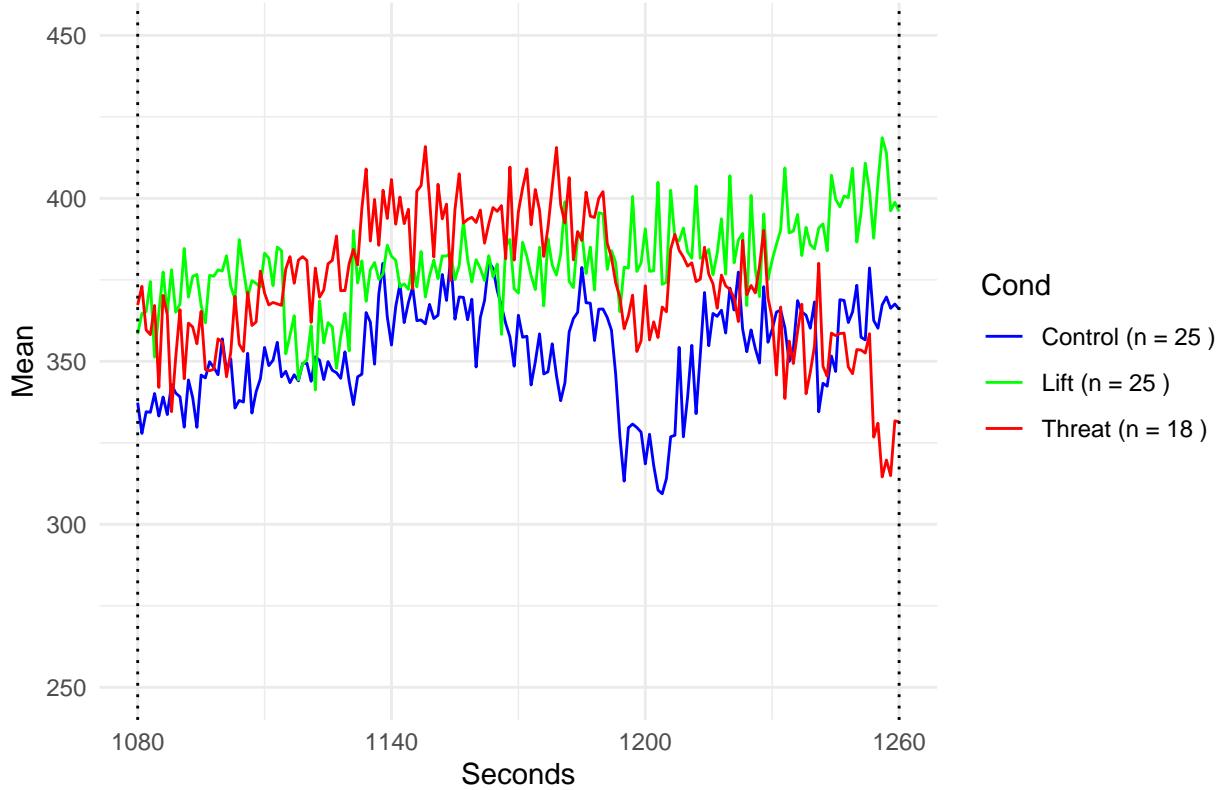
### X axis – Bruce Level 4, n = 88



```
#Bruce 5
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 5, n = ",unique_counts(c(1080,1260)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(250,450)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1080,1260),
    breaks = c(1080,1140,1200,1260)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1080,1260))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

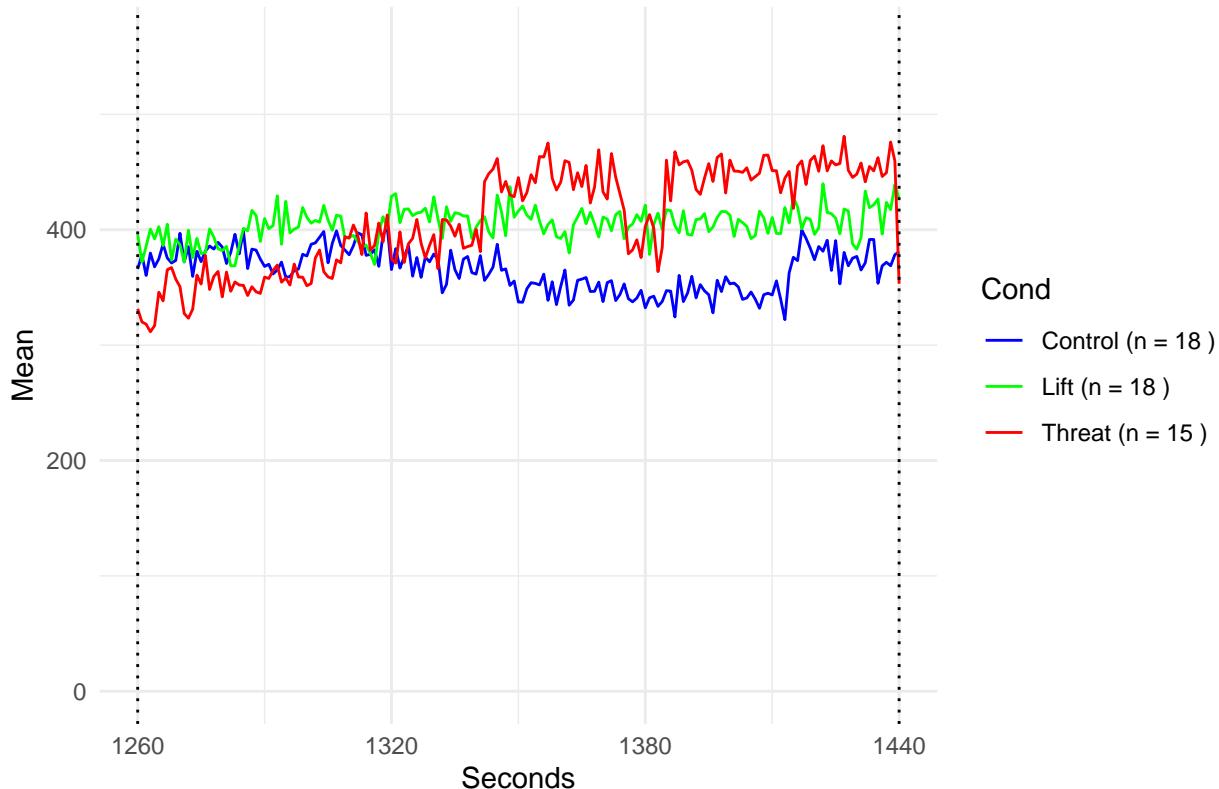
### X axis – Bruce Level 5, n = 68



```
#Bruce 6
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 6, n = ",unique_counts(c(1260,1440)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1260,1440),
    breaks = c(1260,1320,1380,1440)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1260,1440))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

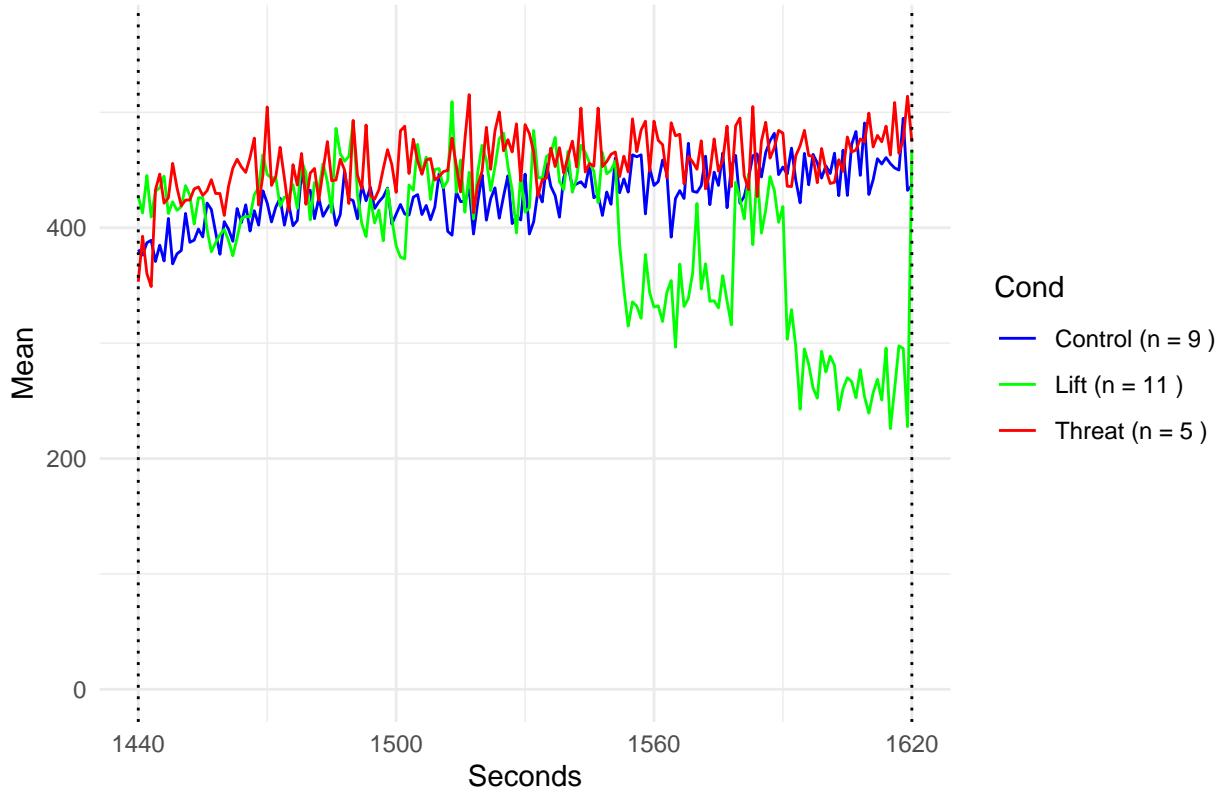
### X axis – Bruce Level 6, n = 51



```
#Bruce 7
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 7, n = ",unique_counts(c(1440,1620)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1440,1620),
    breaks = c(1440,1500,1560,1620)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1440,1620))

## Warning: Removed 6 rows containing missing values ('geom_vline()' ).
```

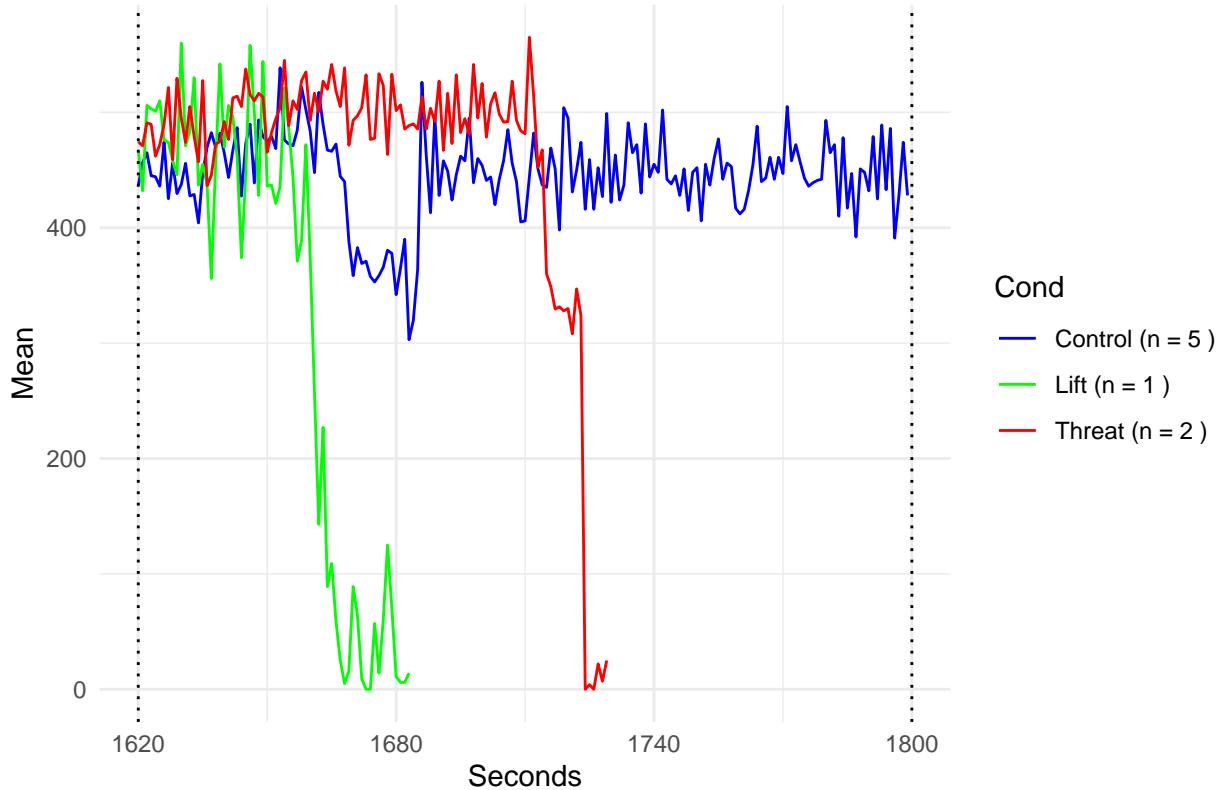
X axis – Bruce Level 7, n = 25



```
#Bruce 8
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 8, n = ",unique_counts(c(1620,1800)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1620,1800),
    breaks = c(1620,1680,1740,1800)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1620,1800))

## Warning: Removed 6 rows containing missing values ('geom_vline()' ).
```

### X axis – Bruce Level 8, n = 8



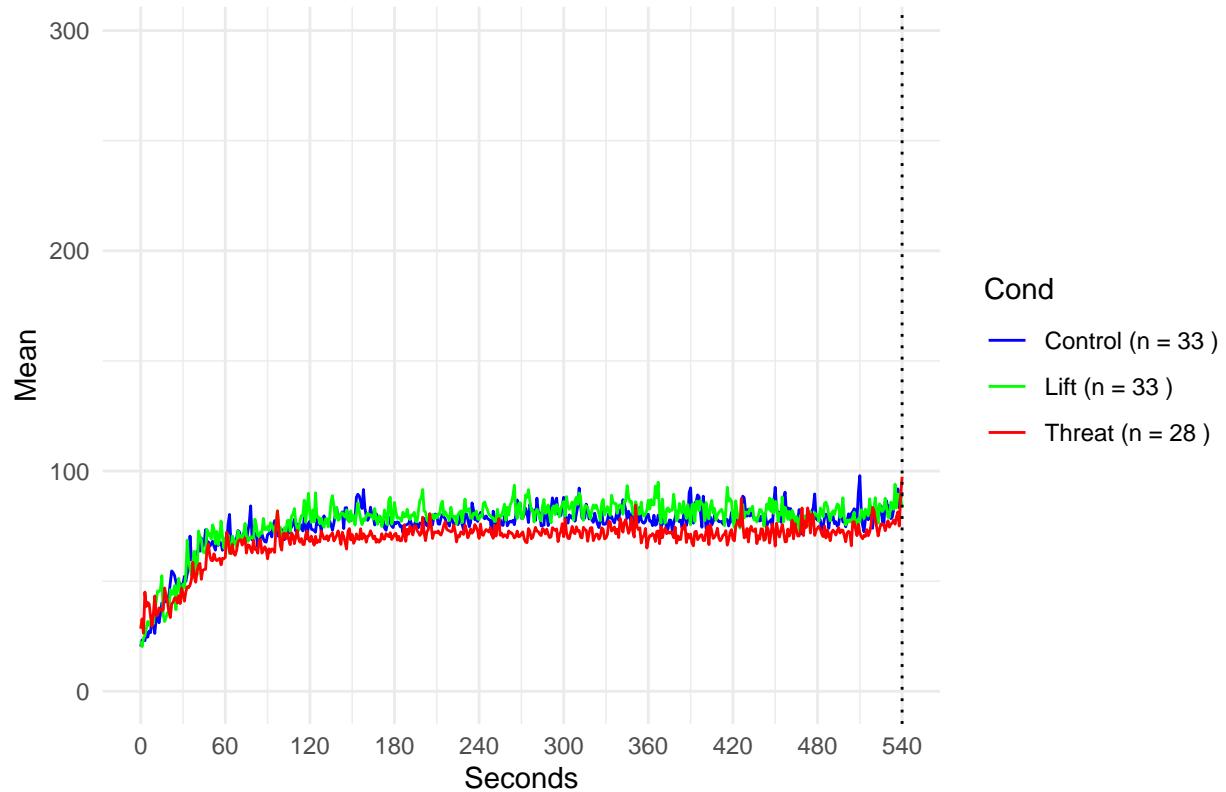
#Y-AXIS

```
mean_df = everything_df %>%
  filter(Cond != "") %>%
  group_by(Seconds, Cond) %>%
  summarise(mean = mean(Y.axis),
            .groups = "drop")

#Bruce 1
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 1, n = ",unique_counts(c(0,540)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(0,540),
    breaks = c(0,60,120,180,240,300,360,420,480,540)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(0,540))
```

## Warning: Removed 7 rows containing missing values ('geom\_vline()'').

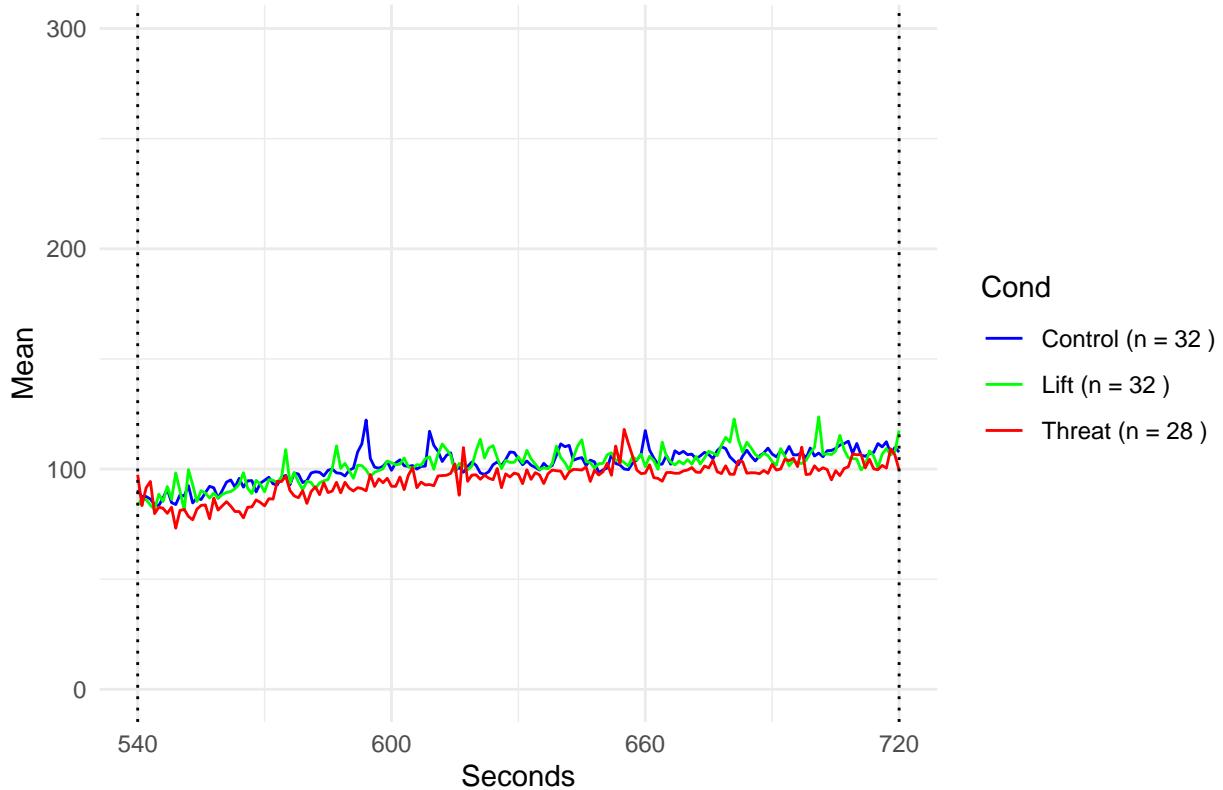
### Y axis – Bruce Level 1, n = 94



```
#Bruce 2
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 2, n = ",unique_counts(c(540,720)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(540,720),
    breaks = c(540,600,660,720)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(540,720))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

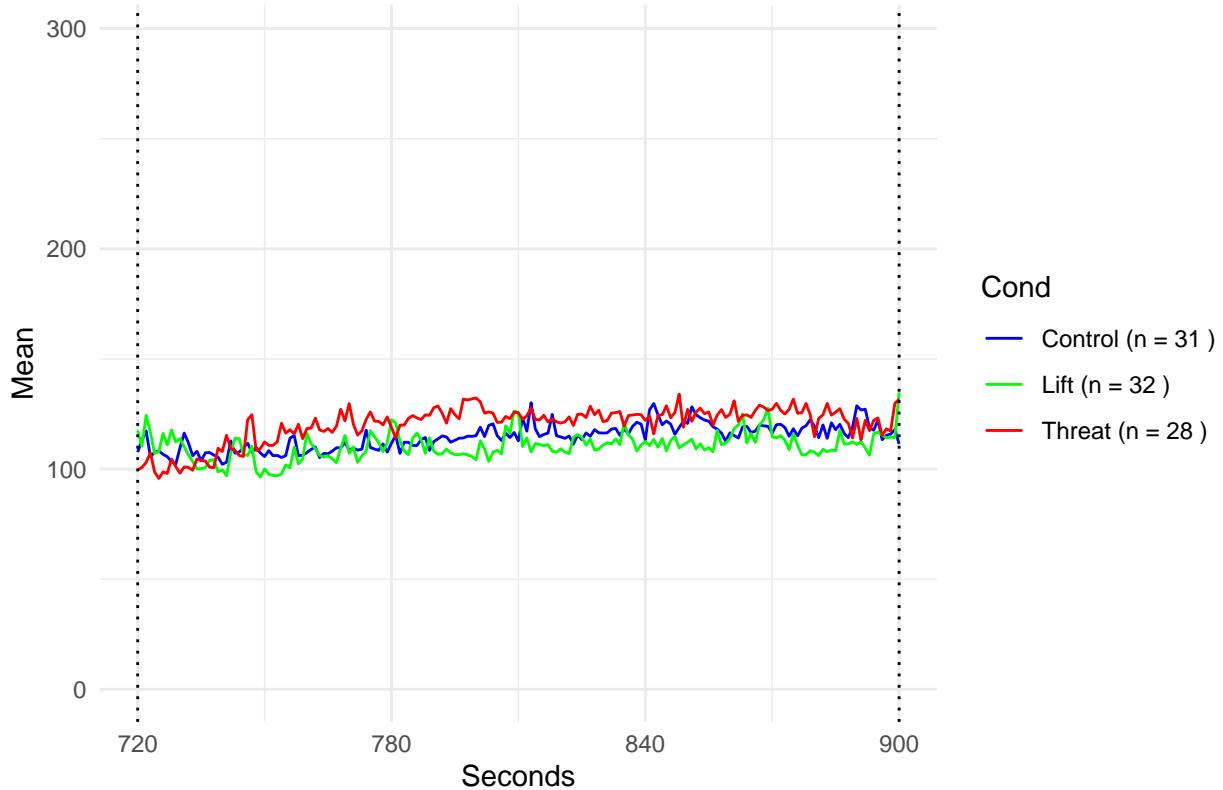
Y axis – Bruce Level 2, n = 92



```
#Bruce 3
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 3, n = ",unique_counts(c(720,900)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(720, 900),
    breaks = c(720,780,840,900)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(720,900))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

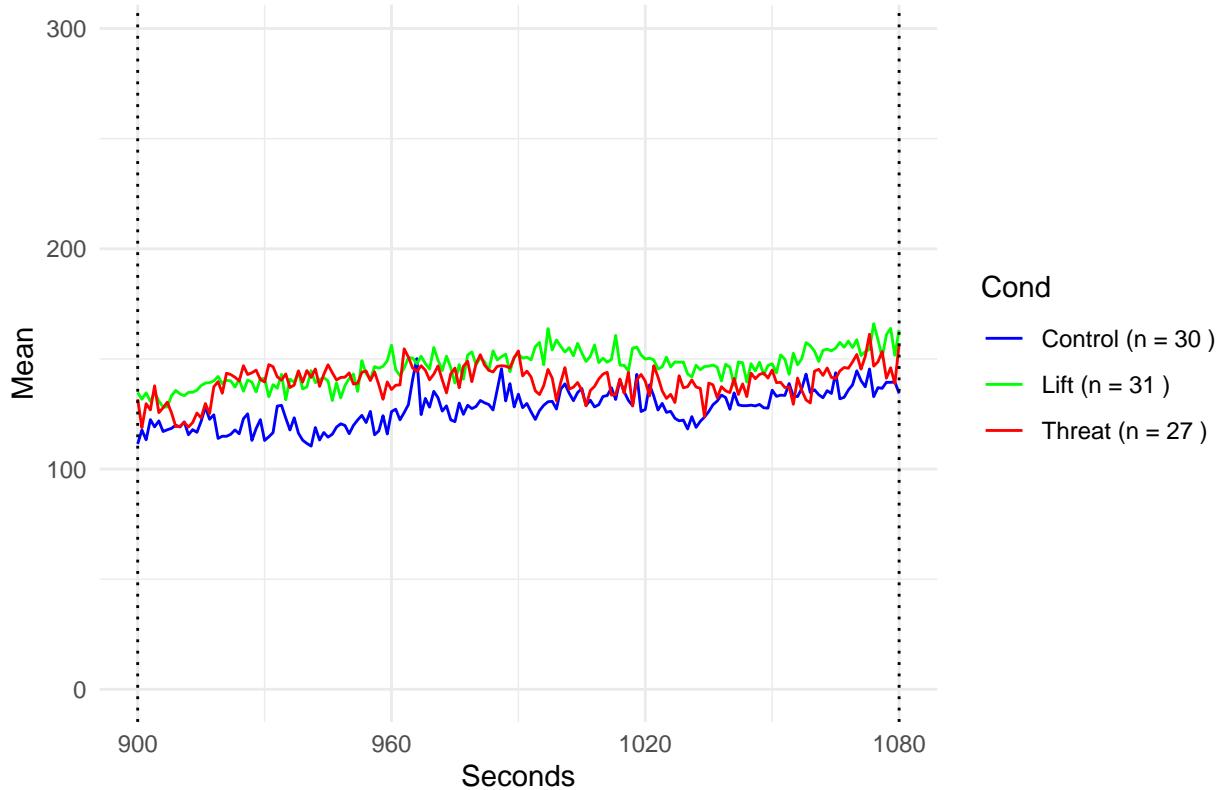
Y axis – Bruce Level 3, n = 91



```
#Bruce 4
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 4, n = ",unique_counts(c(900,1080)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(900,1080),
    breaks = c(900,960,1020,1080)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(900,1080))

## Warning: Removed 6 rows containing missing values ('geom_vline()' ).
```

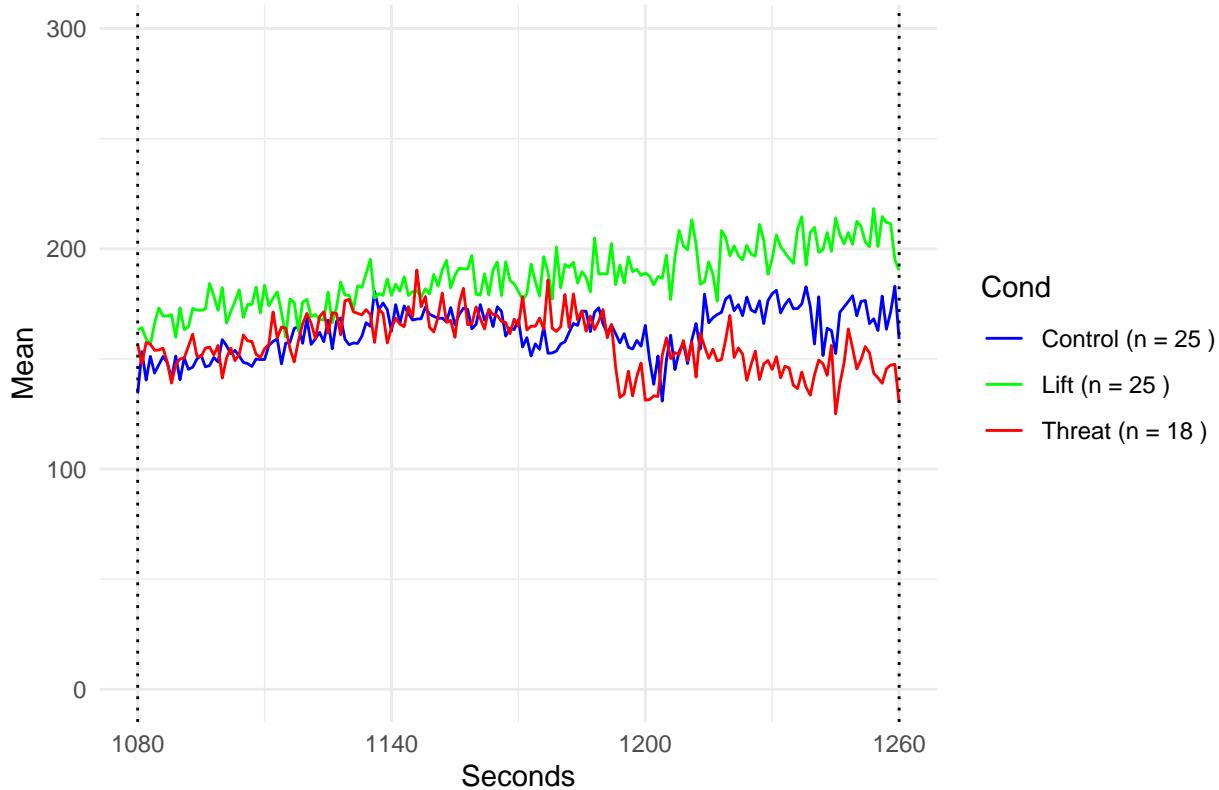
Y axis – Bruce Level 4, n = 88



```
#Bruce 5
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 5, n = ",unique_counts(c(1080,1260)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1080,1260),
    breaks = c(1080,1140,1200,1260)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1080,1260))

## Warning: Removed 6 rows containing missing values ('geom_vline()' ).
```

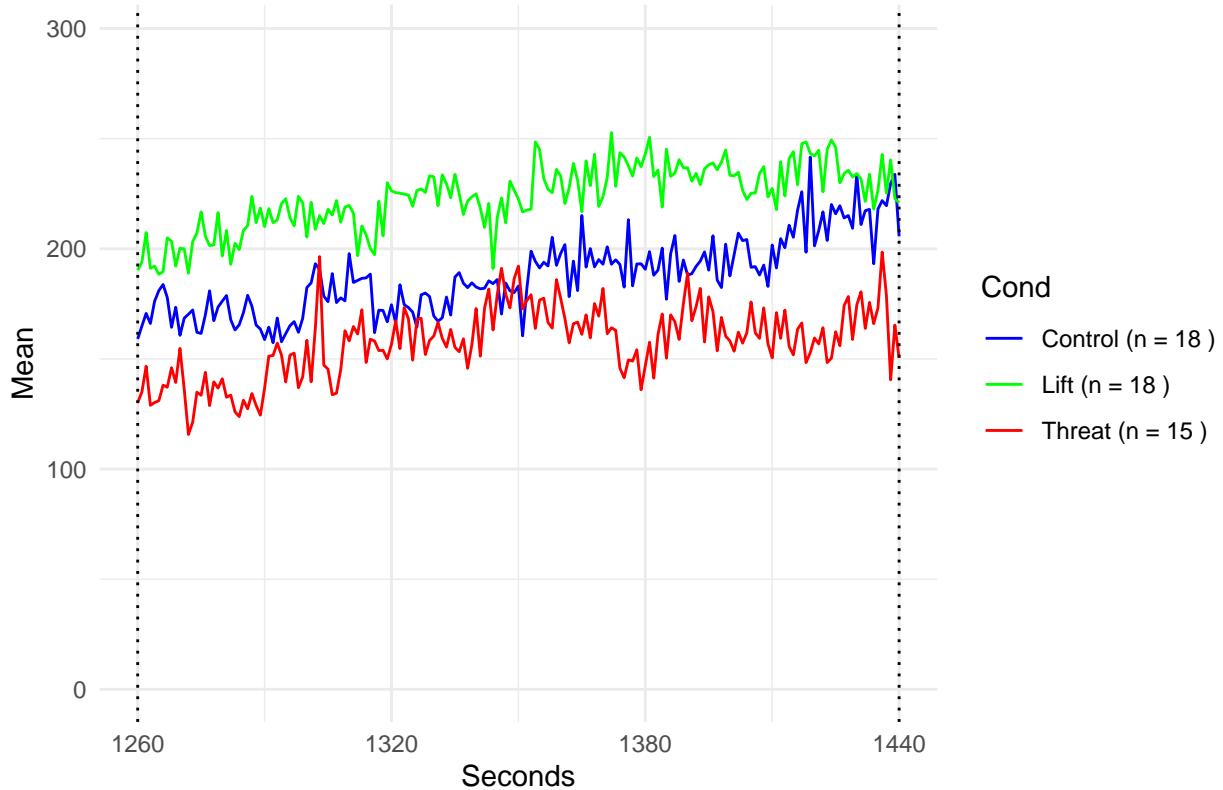
Y axis – Bruce Level 5, n = 68



```
#Bruce 6
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 6, n = ",unique_counts(c(1260,1440)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1260,1440),
    breaks = c(1260,1320,1380,1440)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1260,1440))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

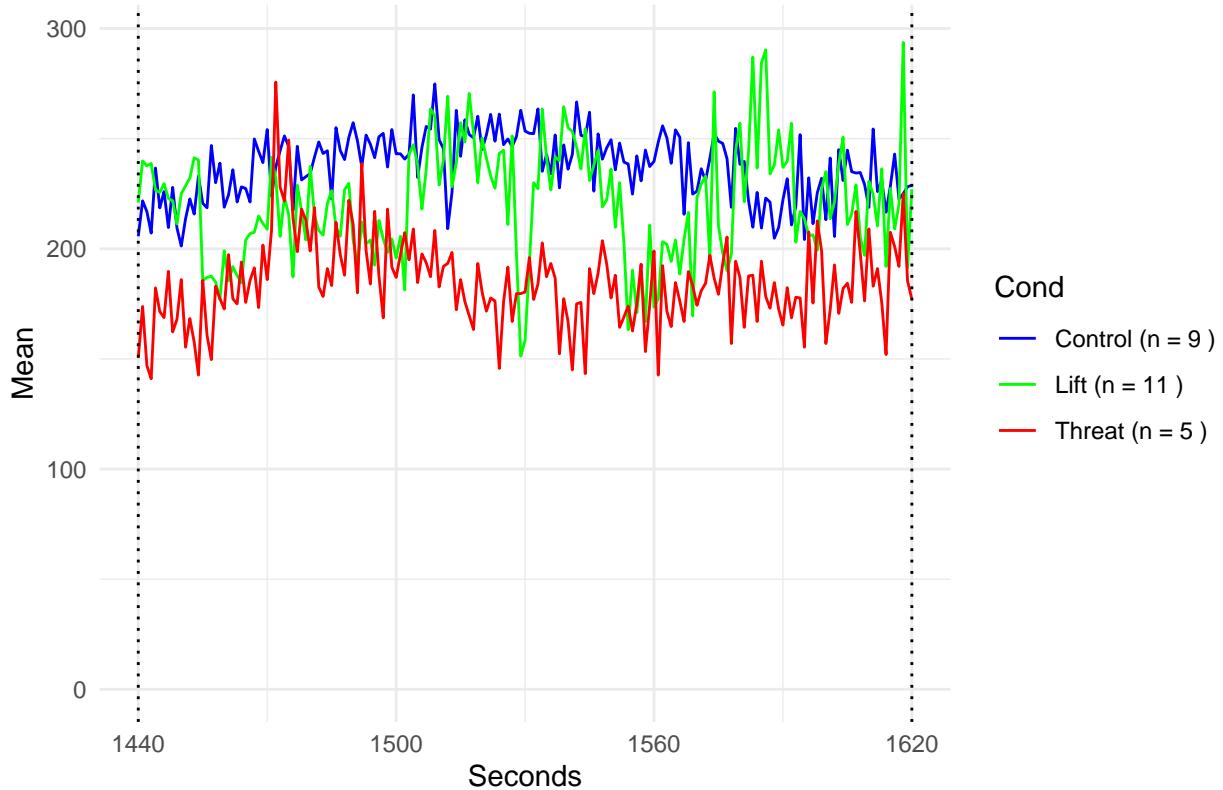
Y axis – Bruce Level 6, n = 51



```
#Bruce 7
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("X axis - Bruce Level 7, n = ",unique_counts(c(1440,1620)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1440,1620),
    breaks = c(1440,1500,1560,1620)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1440,1620))

## Warning: Removed 6 rows containing missing values ('geom_vline()' ).
```

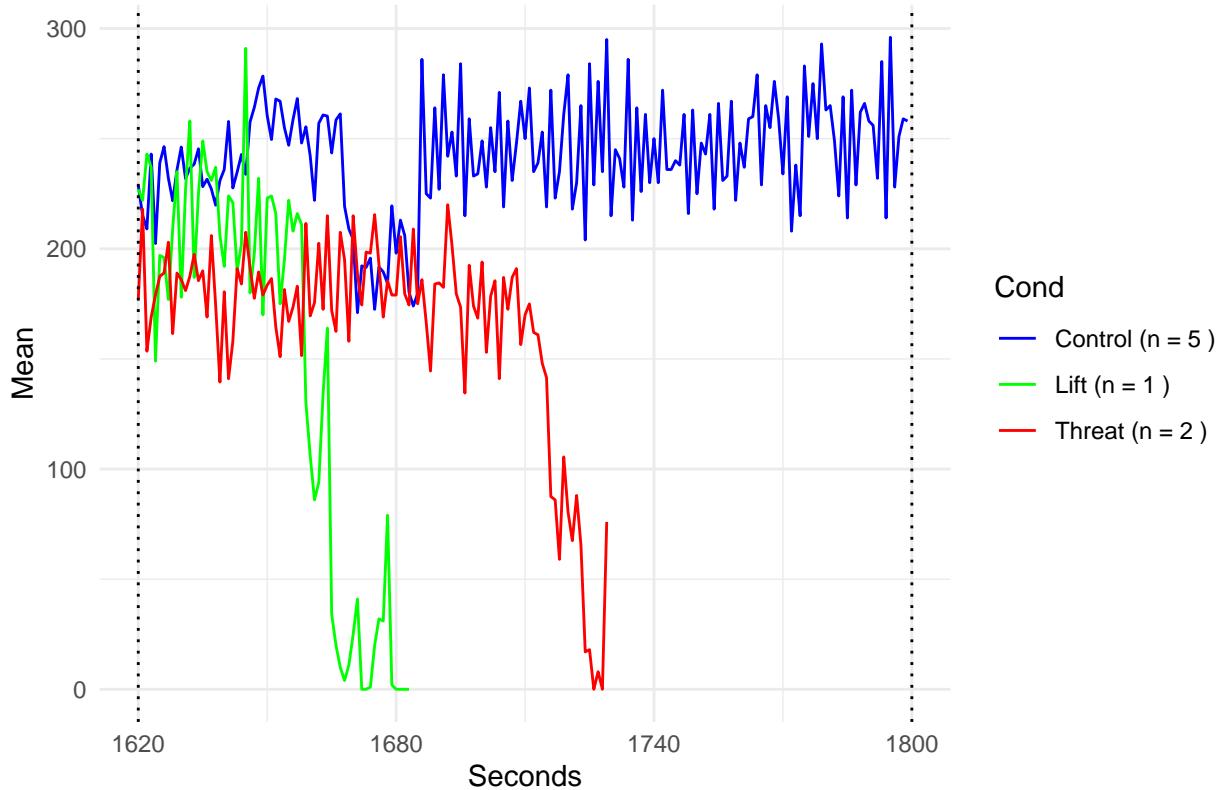
X axis – Bruce Level 7, n = 25



```
#Bruce 8
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Y axis - Bruce Level 8, n = ",unique_counts(c(1620,1800)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1620,1800),
    breaks = c(1620,1680,1740,1800)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1620,1800))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

Y axis – Bruce Level 8, n = 8



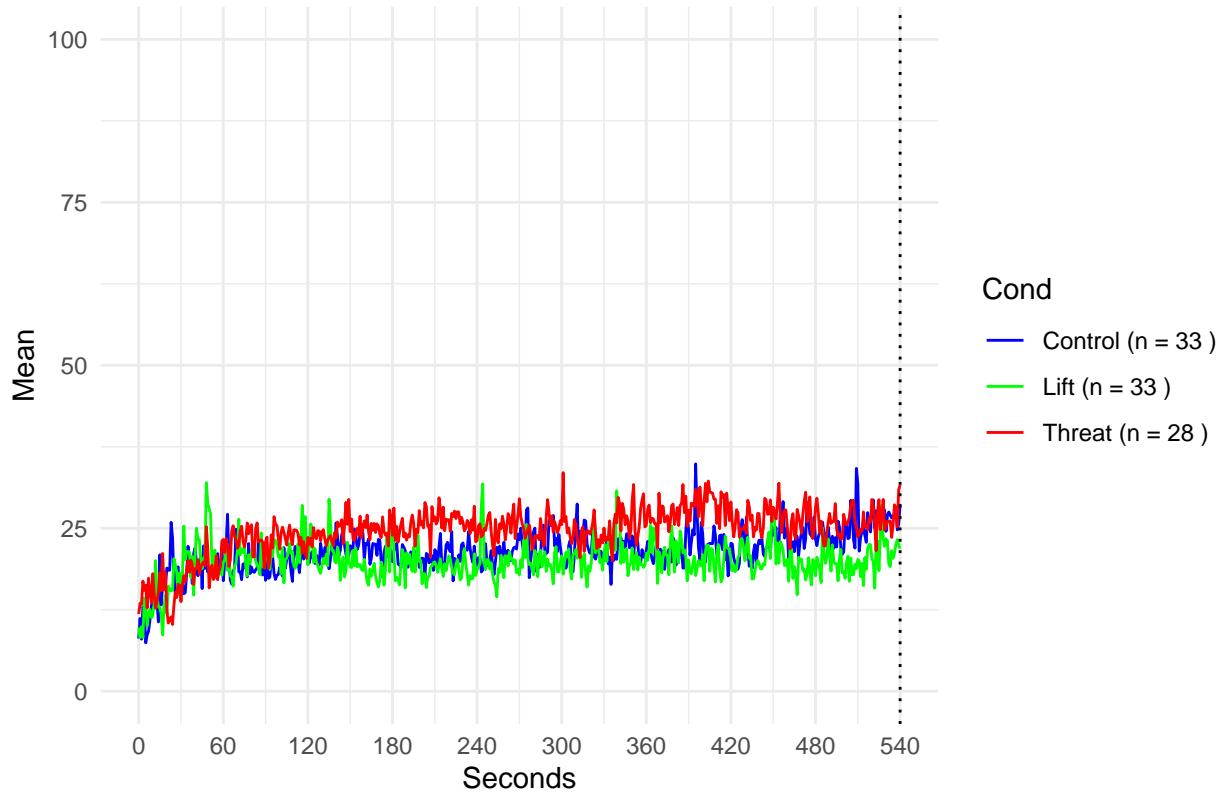
#### #Z-AXIS

```
mean_df = everything_df %>%
  group_by(Seconds, Cond) %>%
  summarise(mean = mean(Z.axis),
            .groups = "drop")

#Bruce 1
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 1, n = ",unique_counts(c(0,540)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(0,100)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(0,540),
    breaks = c(0,60,120,180,240,300,360,420,480,540)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(0,540))
```

## Warning: Removed 7 rows containing missing values ('geom\_vline()'').

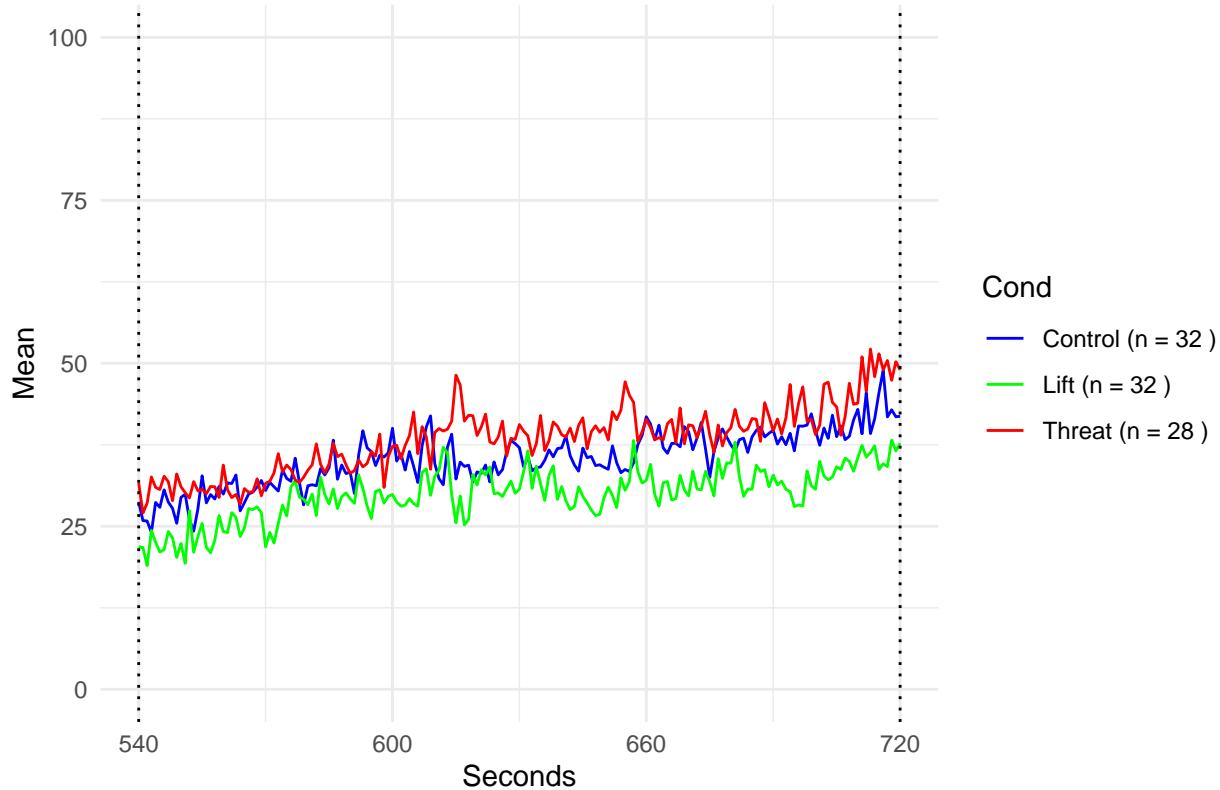
### Z axis – Bruce Level 1, n = 94



```
#Bruce 2
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 2, n = ",unique_counts(c(540,720)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(0,100)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(540,720),
    breaks = c(540,600,660,720)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(540,720))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

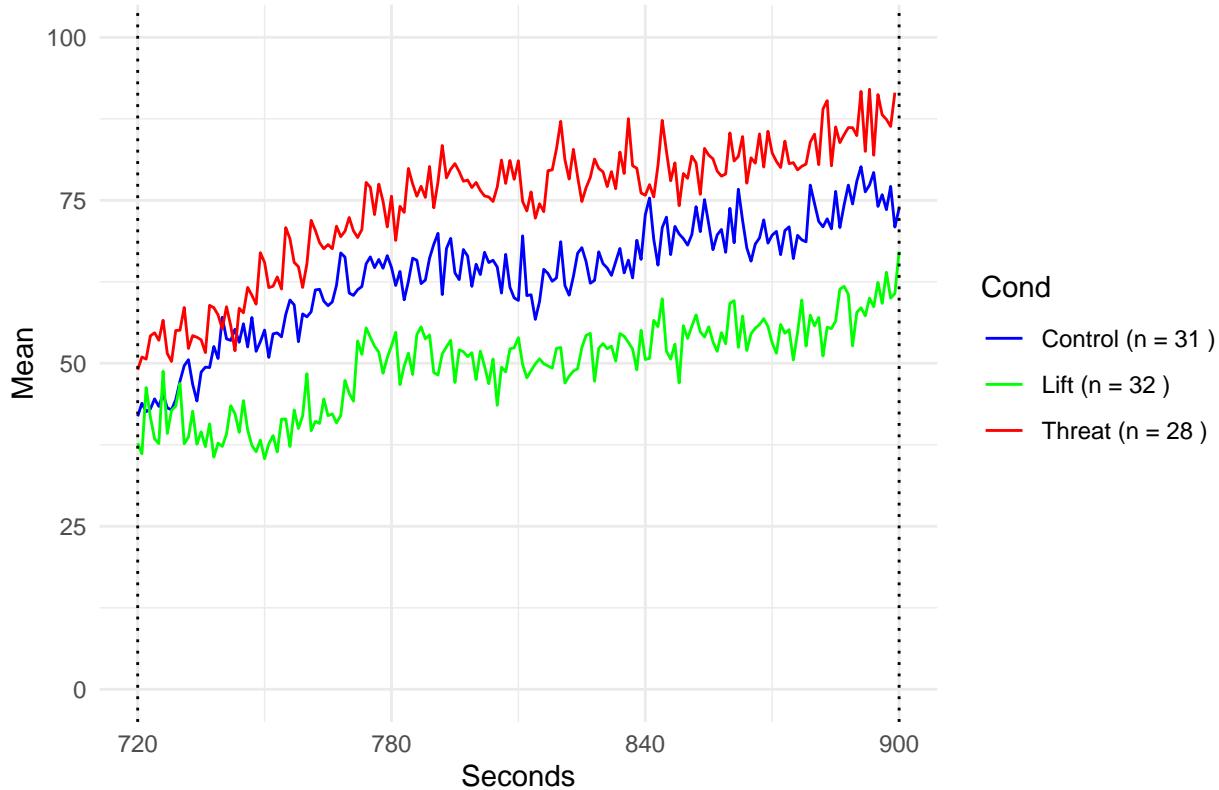
### Z axis – Bruce Level 2, n = 92



```
#Bruce 3
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 3, n = ",unique_counts(c(720,900)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(0,100)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(720, 900),
    breaks = c(720,780,840,900)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(720,900))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

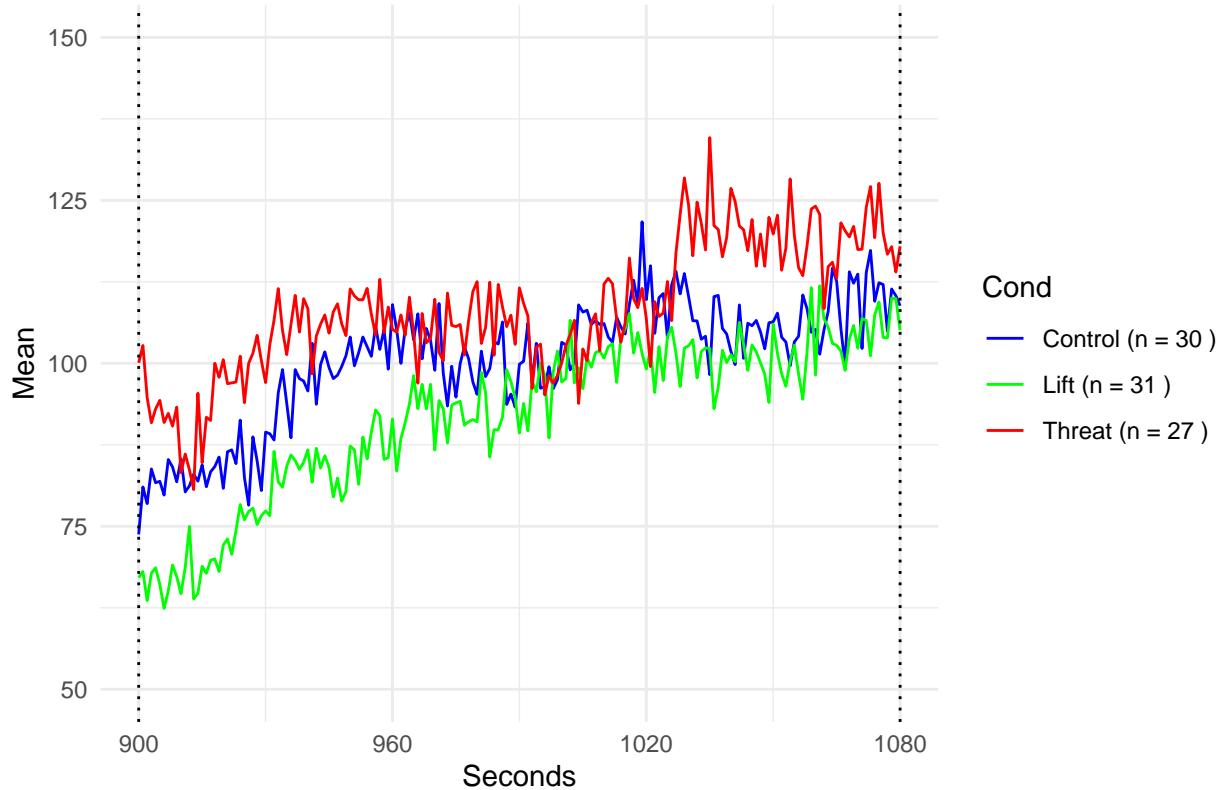
### Z axis – Bruce Level 3, n = 91



```
#Bruce 4
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 4, n = ",unique_counts(c(900,1080)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(50,150)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(900,1080),
    breaks = c(900,960,1020,1080)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(900,1080))
```

## Warning: Removed 6 rows containing missing values ('geom\_vline()').

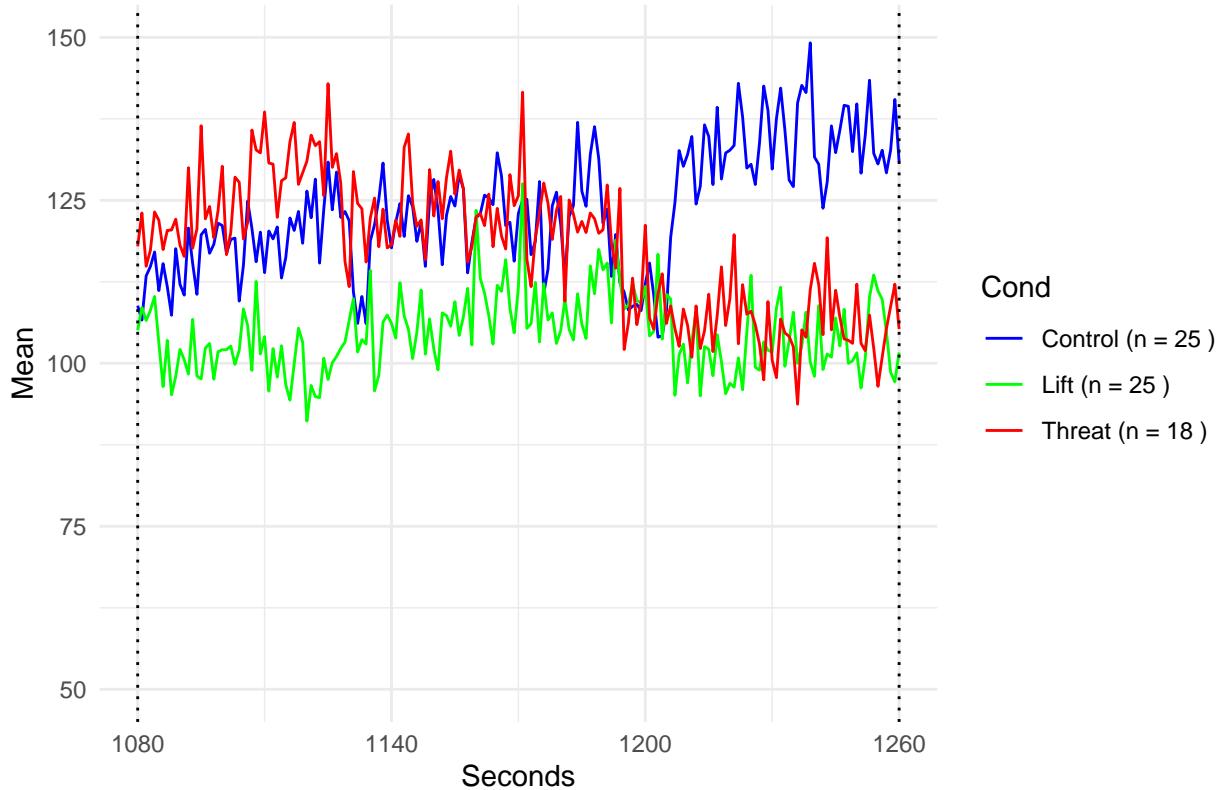
### Z axis – Bruce Level 4, n = 88



```
#Bruce 5
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 5, n = ",unique_counts(c(1080,1260)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(50,150)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1080,1260),
    breaks = c(1080,1140,1200,1260)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1080,1260))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

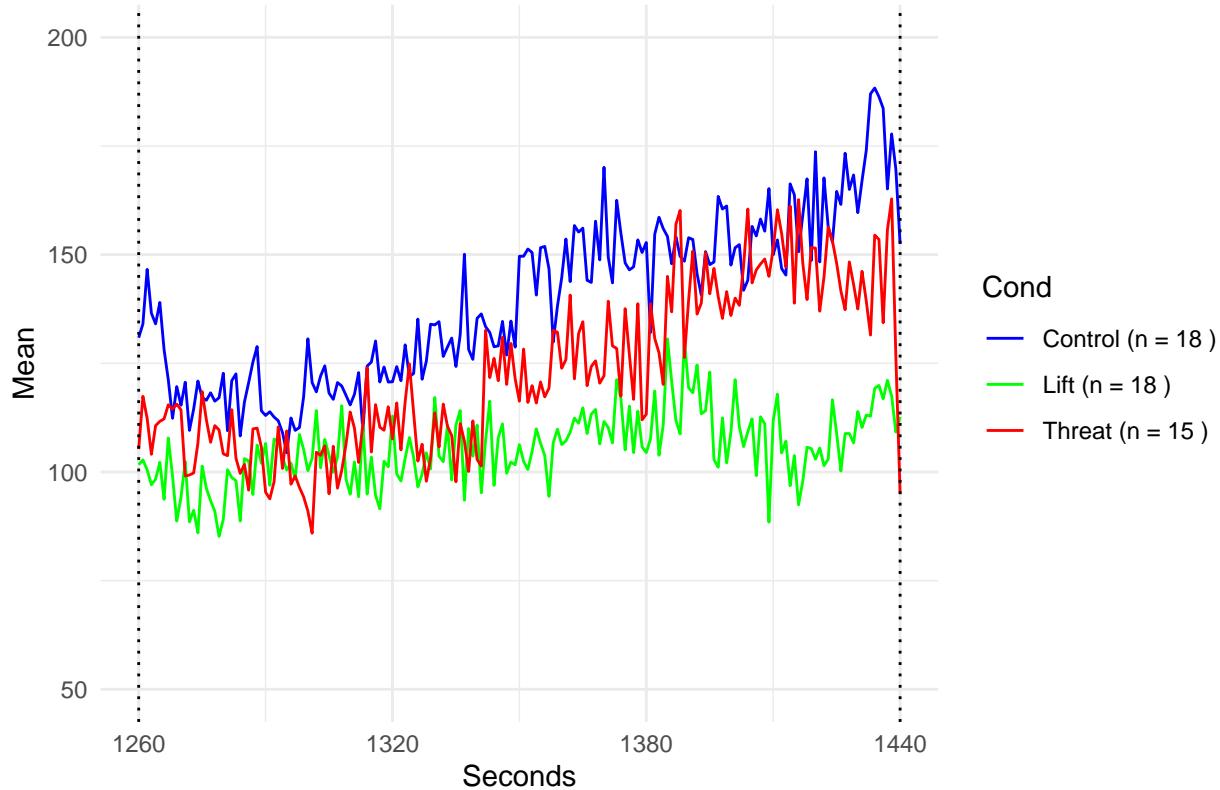
### Z axis – Bruce Level 5, n = 68



```
#Bruce 6
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 6, n = ",unique_counts(c(1260,1440)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(50,200)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1260,1440),
    breaks = c(1260,1320,1380,1440)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1260,1440))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

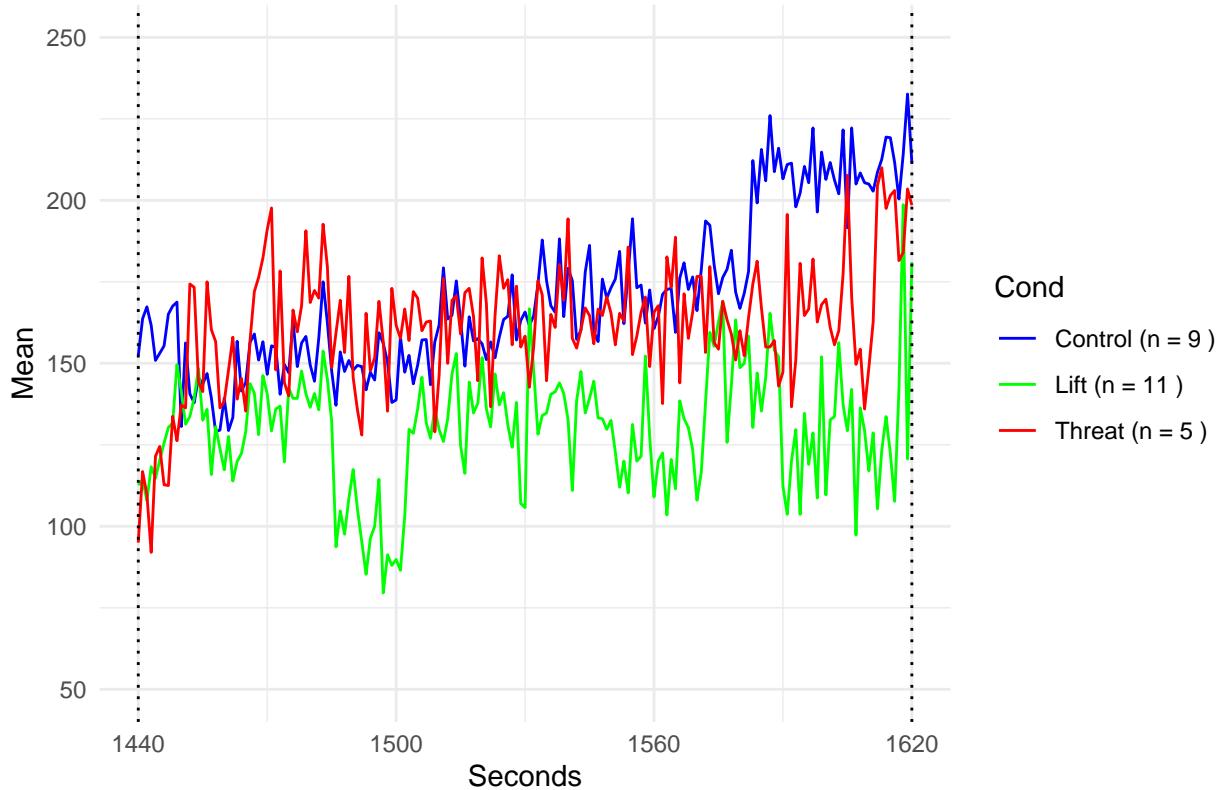
Z axis – Bruce Level 6, n = 51



```
#Bruce 7
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 7, n = ",unique_counts(c(1440,1620)))) +
  theme_minimal() +
  scale_y_continuous(limits = c(50,250)) +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1440,1620),
    breaks = c(1440,1500,1560,1620)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1440,1620))

## Warning: Removed 6 rows containing missing values ('geom_vline()').
```

Z axis – Bruce Level 7, n = 25



```
#Bruce 8
ggplot(mean_df, mapping = aes(x = Seconds, y = mean, color = Cond)) +
  geom_line(na.rm = TRUE) +
  labs(x = "Seconds",
       y = "Mean",
       title = paste("Z axis - Bruce Level 8, n = ",unique_counts(c(1620,1800)))) +
  theme_minimal() +
  geom_vline(xintercept = bruce_levels, color = "black", linetype = "dotted") +
  scale_x_continuous(
    limits = c(1620,1800),
    breaks = c(1620,1680,1740,1800)) +
  scale_color_manual(values = condition_colors,
                     labels = unique_ids_labels(1620,1800))

## Warning: Removed 6 rows containing missing values ('geom_vline()' ).
```

Z axis – Bruce Level 8, n = 8

