

# GAMERS IN SURGERY

# Problem

- Do video game players have better hand-eye coordination for jobs such as laparoscopic surgery than people who don't play video games?

# Hypothesis

- I think that video game players have better hand-eye coordination for jobs requiring skills such as laparoscopic surgery. If my hypothesis is right, video game players will be great at surgery and do well in the medical field.

# Variables

- ⦿ Independent variables: people
- ⦿ Dependent variables: Time taken to locate gummy bear with camera; time taken to grasp and pull gummy bear out of the body.
- ⦿ Constants: Clock, laparoscopic camera and grasper, gummy bears.

# Materials

- Surgical Technology Laboratory
- **Life-size, anatomically correct surgical dummy**
- **Laparoscopic equipment:**
- **Laparoscopic video camera and monitor**
- **Trocars and cannulas**
- **Laparoscopic forceps, graspers, scissors.**
- **Gummy bears**

# Procedure

1. Place gummy bear into the cavity and close up the abdomen.
2. One team member inserts camera, while the other member inserts grasper.
3. While watching the monitor, the camera person locates the gummy bear.
4. The grasper person moves the grasper until they find the gummy bear, which then they grab and pull out through the cannulas.
5. Record times for the camera person to find the gummy bear, and the grasper to find and pull out gummy bear.

# Data charts

Trials	Gamers	Nongamers	Mixed
Time to locate item with camera			
Trial 1	1:0363 sec.	2:40160 sec.	2:01121 sec.
Trial 2	:57 sec.	3:00180 sec.	1:47107 sec.
Trial 3	:56 sec.	3:01181 sec.	1:57117 sec.
Average	58.7 sec.	173.7 sec.	115 sec.
Time to grab item and pull out			
Trial 1	3:01181 sec.	1:51111 sec.	1:2080 sec.
Trial 2	2:30150 sec.	1:3393 sec.	1:1373 sec.
Total time for entire test			
Trial 3	2:31151 sec.	1:2080 sec.	1:0767 sec.
Average	160.7 sec.	94.7 sec.	73.3 sec.
Trial 1	4:04244 sec.	4:21261 sec.	3:21201 sec.
Trial 2	3:27207 sec.	4:33273 sec.	3:00180 sec.
Trial 3	3:27207 sec.	4:21261 sec.	2:04124 sec.
Average	219.3 sec.	265 sec.	168.3 sec.

# Discussion of data

The video game players had an average of 58.7 seconds for locating the gummy bear, 160.7 seconds for grabbing and pulling the gummy bear out, and the total average was 219.3 seconds. The nongamers averages were 173.7 seconds, 94.7 seconds, and the total was 265 seconds. The mixed groups averages were 115 seconds, 73.3 seconds, and the total was 168.3 seconds. These times show that the times are mostly around each other, and that the mixed group works pretty well.



# Explanation of graph

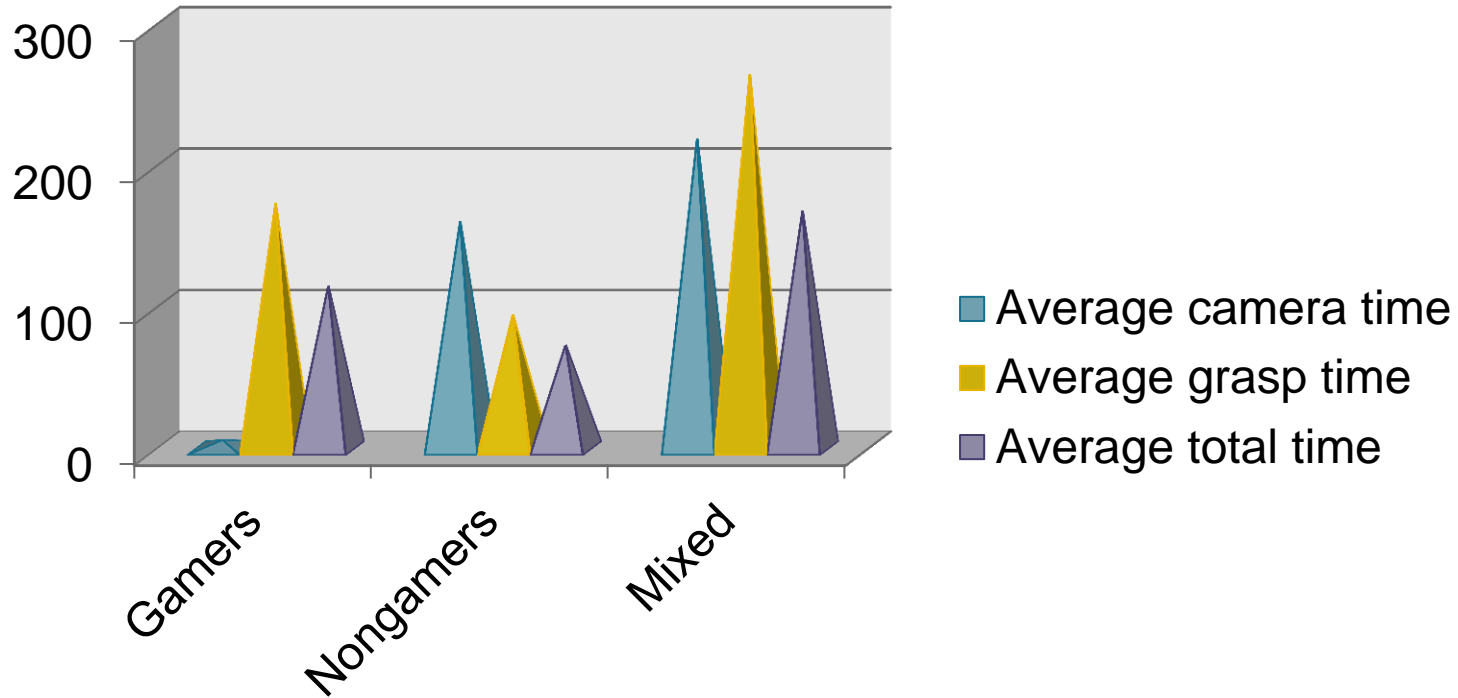
The average times I used was the all together experience.

The average for camera time is 219.3

The average time for pulling and grabbing the bear out is 265,

And the average for the total test is 168.3 seconds.

# Graph of information



# Observations

- The video gaming team located the gummy bear fastest, but the mixed team was faster in pulling it out and overall. The nongaming team also were faster than the video game team in pulling the item out. By looking at these results, a video game player can orient a camera visually faster than the non gamers and mixed team, but video gaming doesn't seem to help in grabbing something and pulling it out.

# Conclusion

My hypothesis was wrong. The experiment does not prove that video game players have better hand-eye coordination than people without gaming experience.

# Recommendations

One thing I thought about later on is that the video game group was in their 20's, the nongamer group were in their late 30's and 40's, and the mixed group was in their early teens. This made me wonder if video game experience or age had an effect on these skills, so that would be a good thing to experiment with, also.