

# *Investigating NBA Shot Data*

- Data scraped from stats.nba.com
- Data set downloaded from kaggle:  
<https://www.kaggle.com/dansbecker/nba-shot-logs>
- Data produced by SportVU



<https://www.stats.com/>  
[Sportvu-basketball-media](https://www.sportvu.com/basketball-media)  
<https://www.nba.com/>

## ***Let's watch a video:***

- <https://www.youtube.com/watch?v=QPoZcFnHg14&t=11m27s>



# Sample Data Point:

SHOT DISTANCE	CLOSEST DEF. DISTANCE	SHOOTER HEIGHT	CLOSEST DEF. HEIGHT	SHOOTER NAME	DEFENDER NAME	GAME CLOCK	SHOT CLOCK
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# Sample Data Point:

SHOT  
DISTANCE  
(feet)

27.6

CLOSEST  
DEF.  
DISTANCE

SHOOTER  
HEIGHT

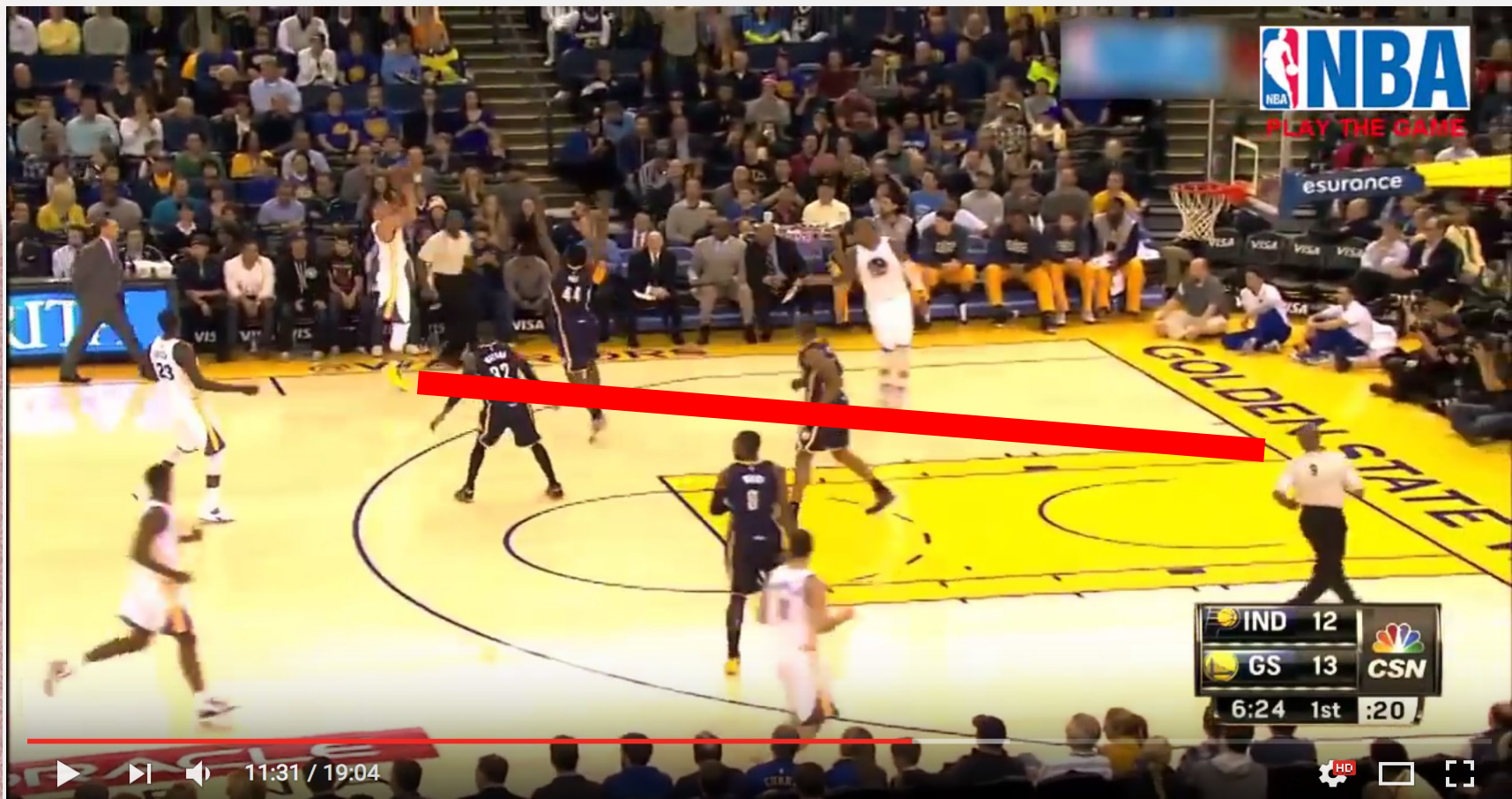
CLOSEST  
DEF.  
HEIGHT

SHOOTER  
NAME

DEFENDER  
NAME

GAME  
CLOCK

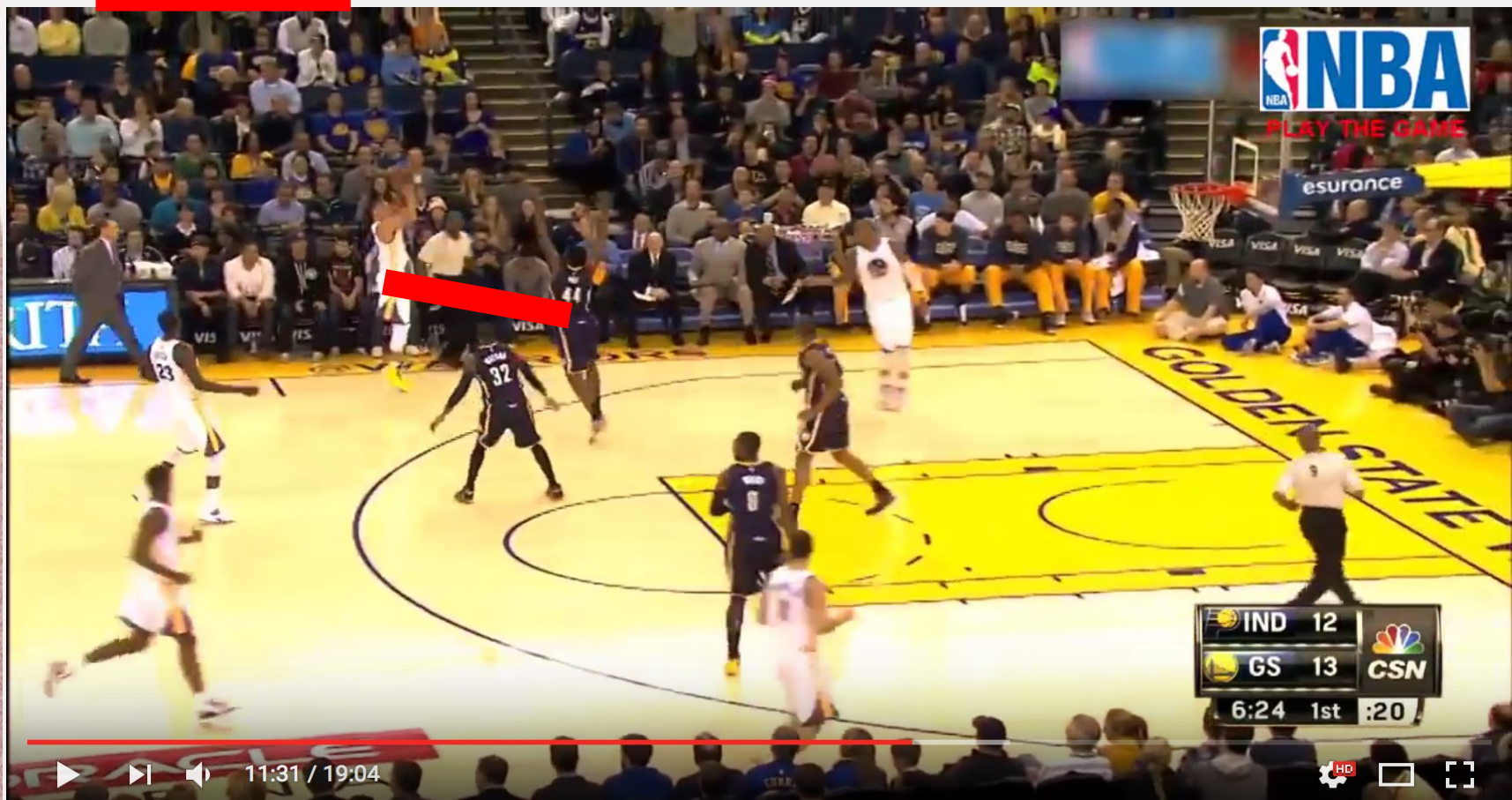
SHOT  
CLOCK





# Sample Data Point:

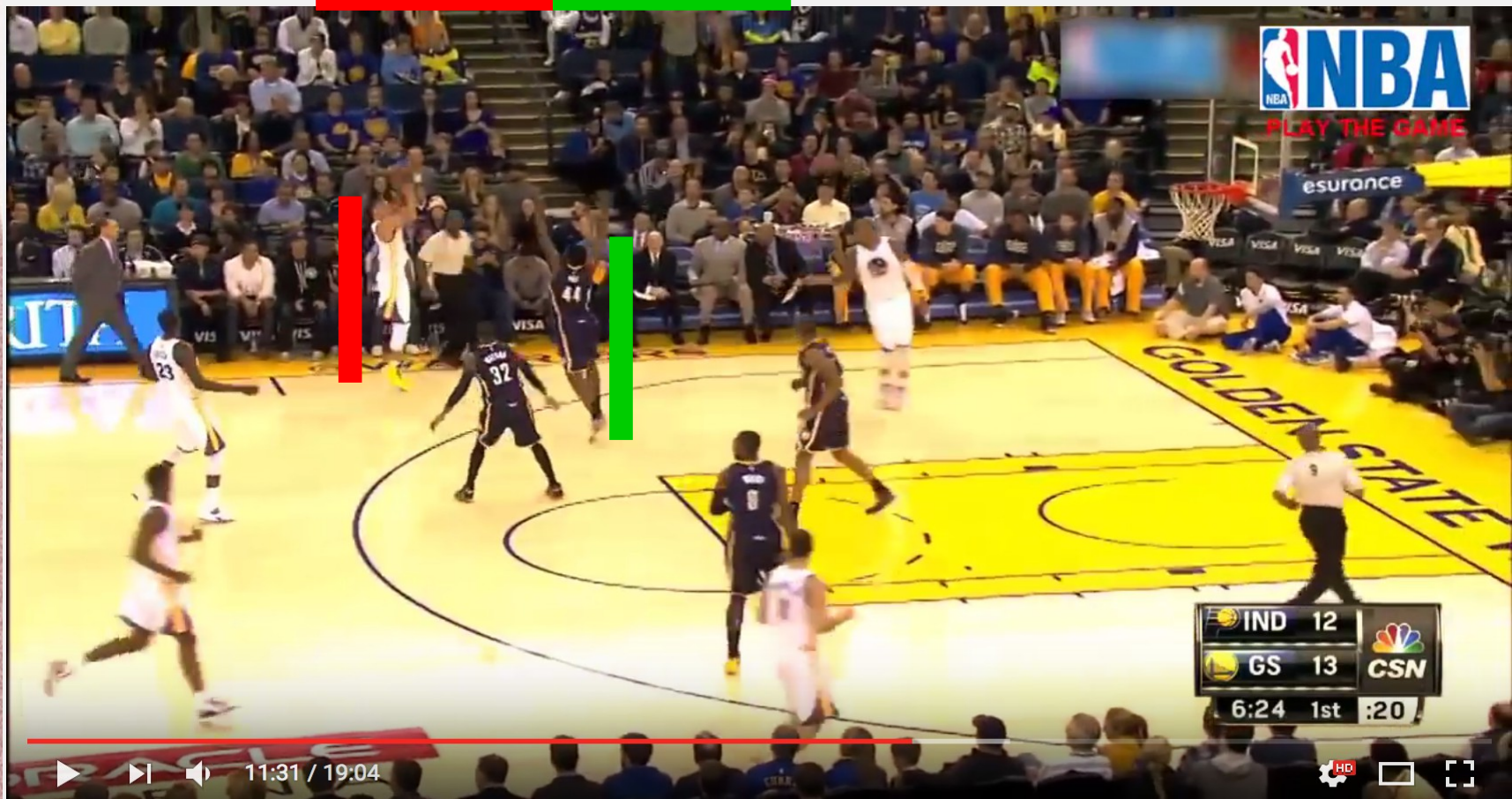
SHOT DISTANCE	CLOSEST DEF. DISTANCE	SHOOTER HEIGHT	CLOSEST DEF. HEIGHT	SHOOTER NAME	DEFENDER NAME	GAME CLOCK	SHOT CLOCK
27.6	6.5						





# Sample Data Point:

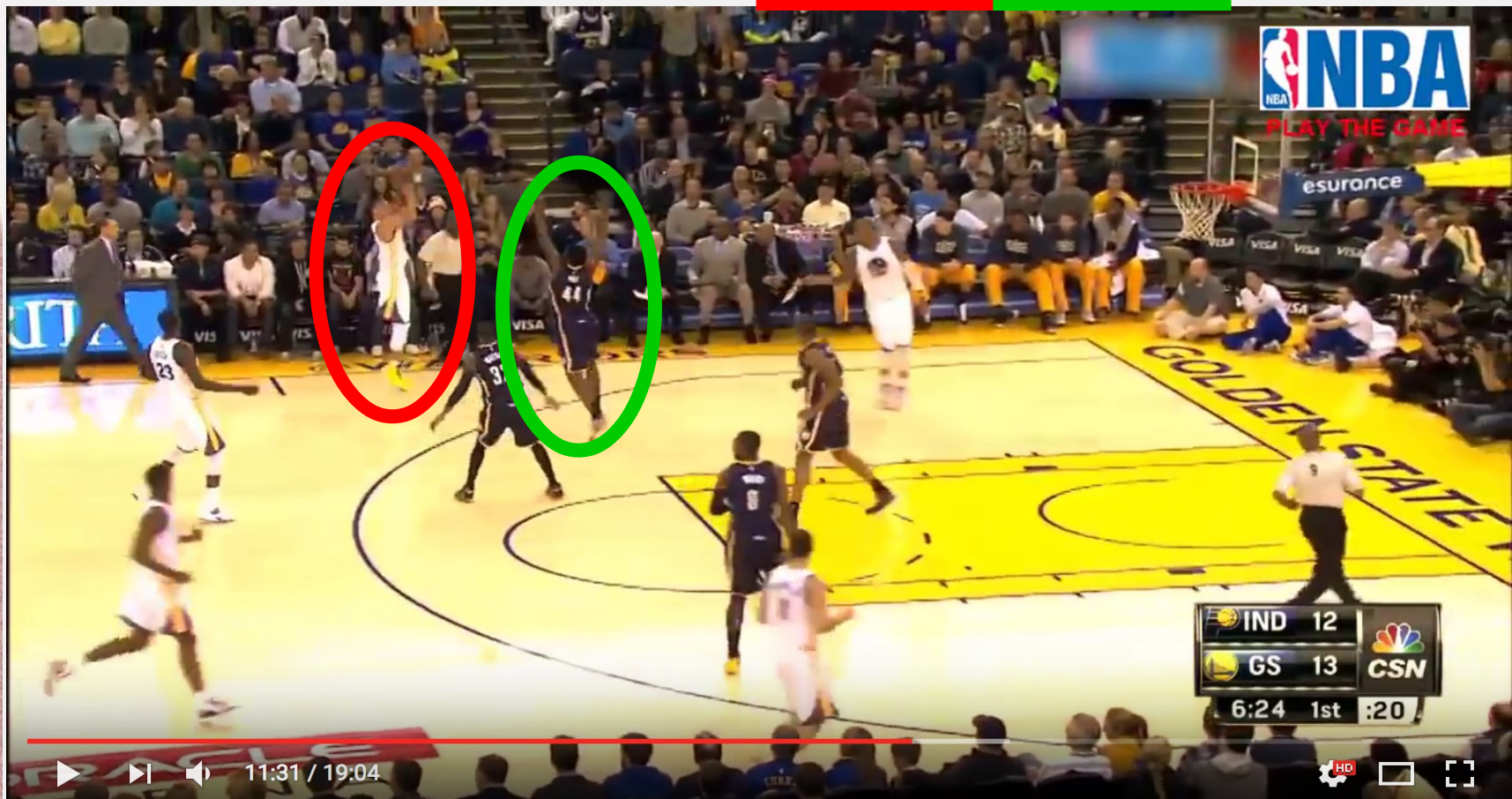
SHOT DISTANCE	CLOSEST DEF. DISTANCE	SHOOTER HEIGHT (inches)	CLOSEST DEF. HEIGHT	SHOOTER NAME	DEFENDER NAME	GAME CLOCK	SHOT CLOCK
27.6	6.5	75	79				





# Sample Data Point:

SHOT DISTANCE	CLOSEST DEF. DISTANCE	SHOOTER HEIGHT	CLOSEST DEF. HEIGHT	SHOOTER NAME	DEFENDER NAME	GAME CLOCK	SHOT CLOCK
27.6	6.5	75	79	Steph Curry	Solomon Hill		





# Sample Data Point:

SHOT DISTANCE	CLOSEST DEF. DISTANCE	SHOOTER HEIGHT	CLOSEST DEF. HEIGHT	SHOOTER NAME	DEFENDER NAME	GAME CLOCK	SHOT CLOCK
27.6	6.5	75	79	Steph Curry	Solomon Hill	6:24	20





FOCUS ON

# Sample Data Point:

SHOT DISTANCE	CLOSEST DEF. DISTANCE	SHOOTER HEIGHT
27.6	6.5	75

CLOSEST DEF. HEIGHT	SHOOTER NAME	DEFENDER NAME	GAME CLOCK	SHOT CLOCK
79	Steph Curry	Solomon Hill	6:24	20





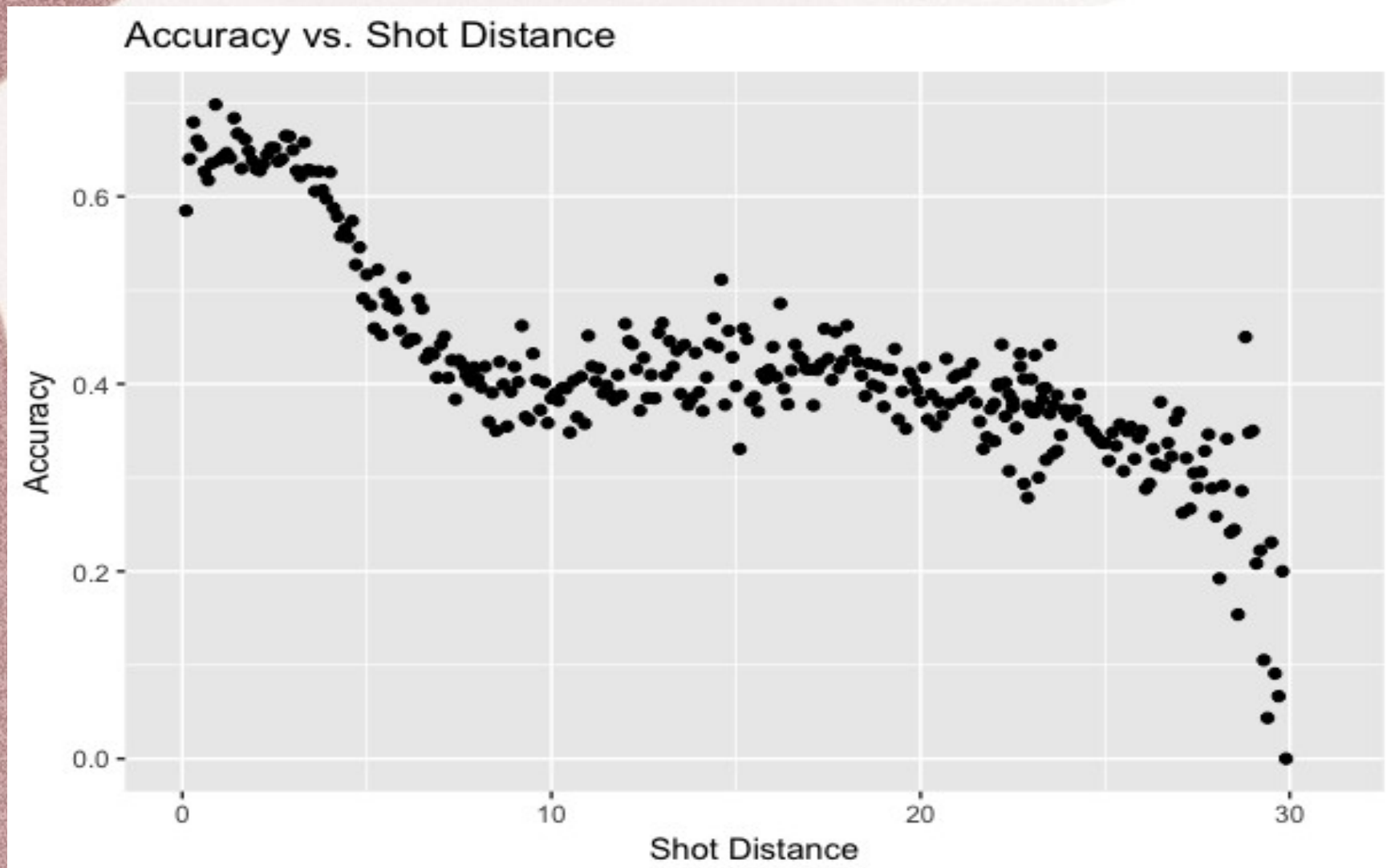
# ***Investigating the data:***

**Question: How does a shooter's accuracy vary with shot distance?**



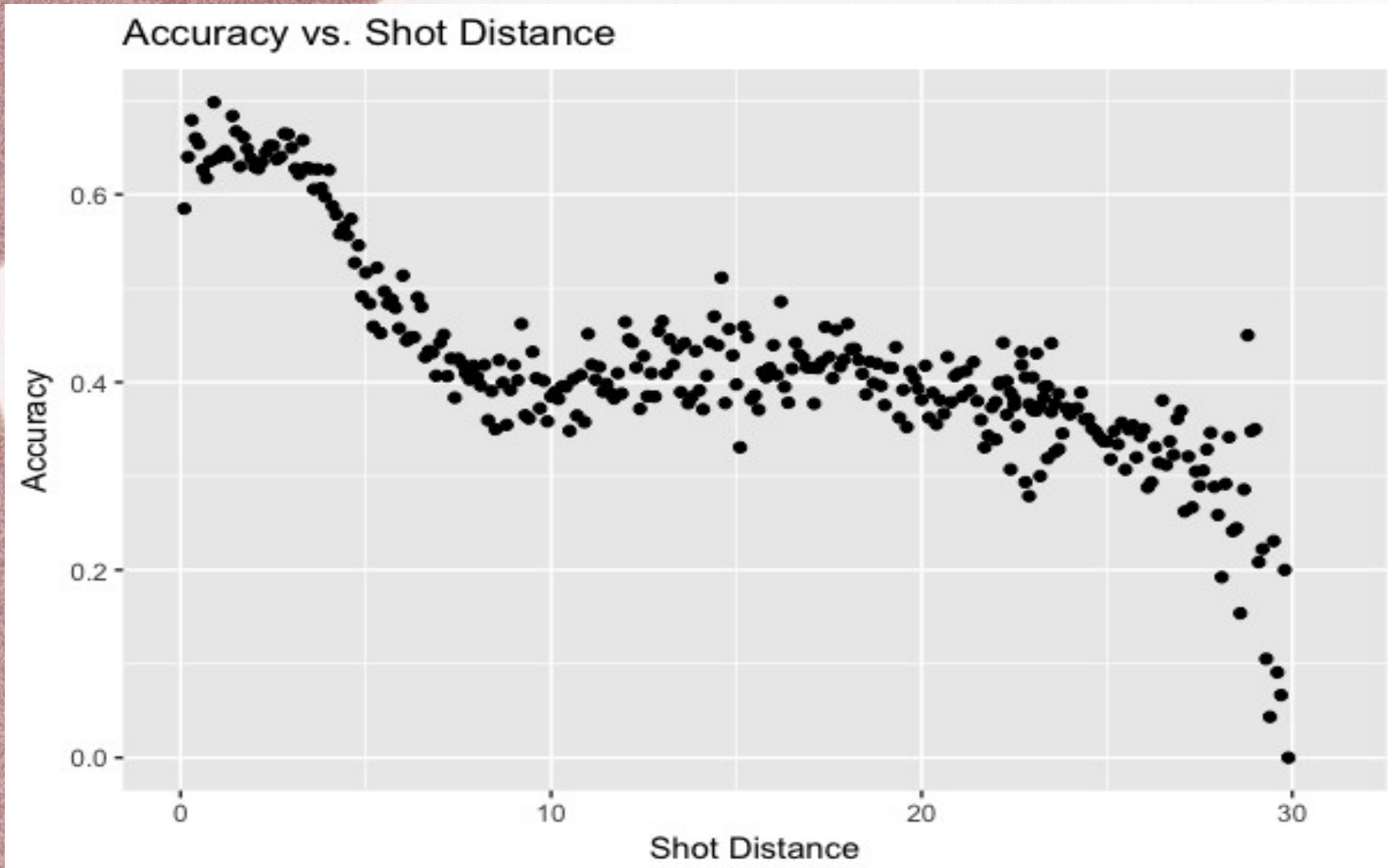
# *Investigating the data:*

Question: How does a shooter's accuracy vary with shot distance?





# *What's going on here?*



SHOT  
DISTANCE

CLOSEST  
DEF.  
DISTANCE

SHOOTER  
HEIGHT

CLOSEST  
DEF.  
HEIGHT

SHOOTER  
NAME

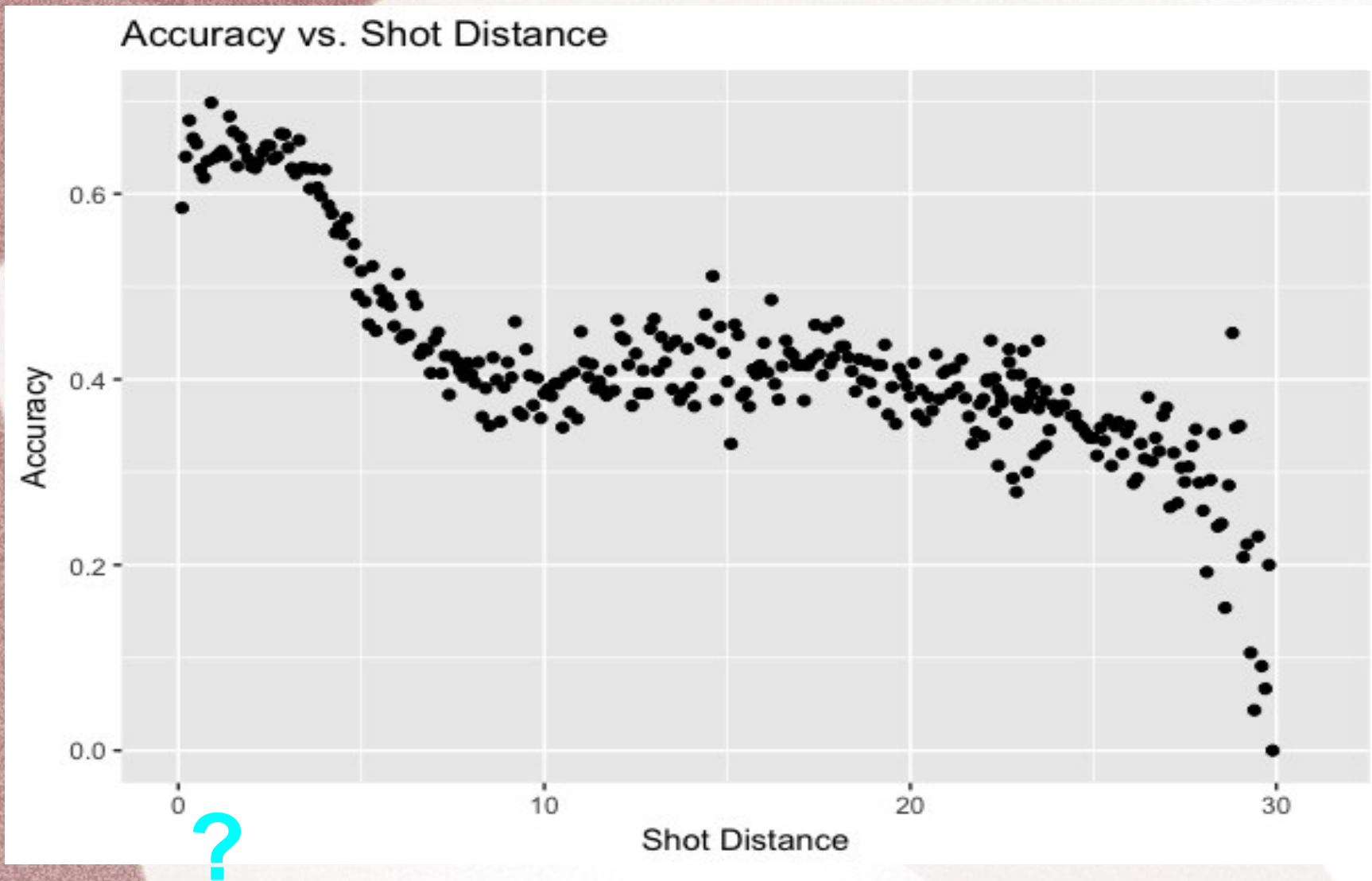
DEFENDER  
NAME

GAME  
CLOCK

SHOT  
CLOCK



# *What's going on here?*



SHOT  
DISTANCE

CLOSEST  
DEF.  
DISTANCE

SHOOTER  
HEIGHT

CLOSEST  
DEF.  
HEIGHT

SHOOTER  
NAME

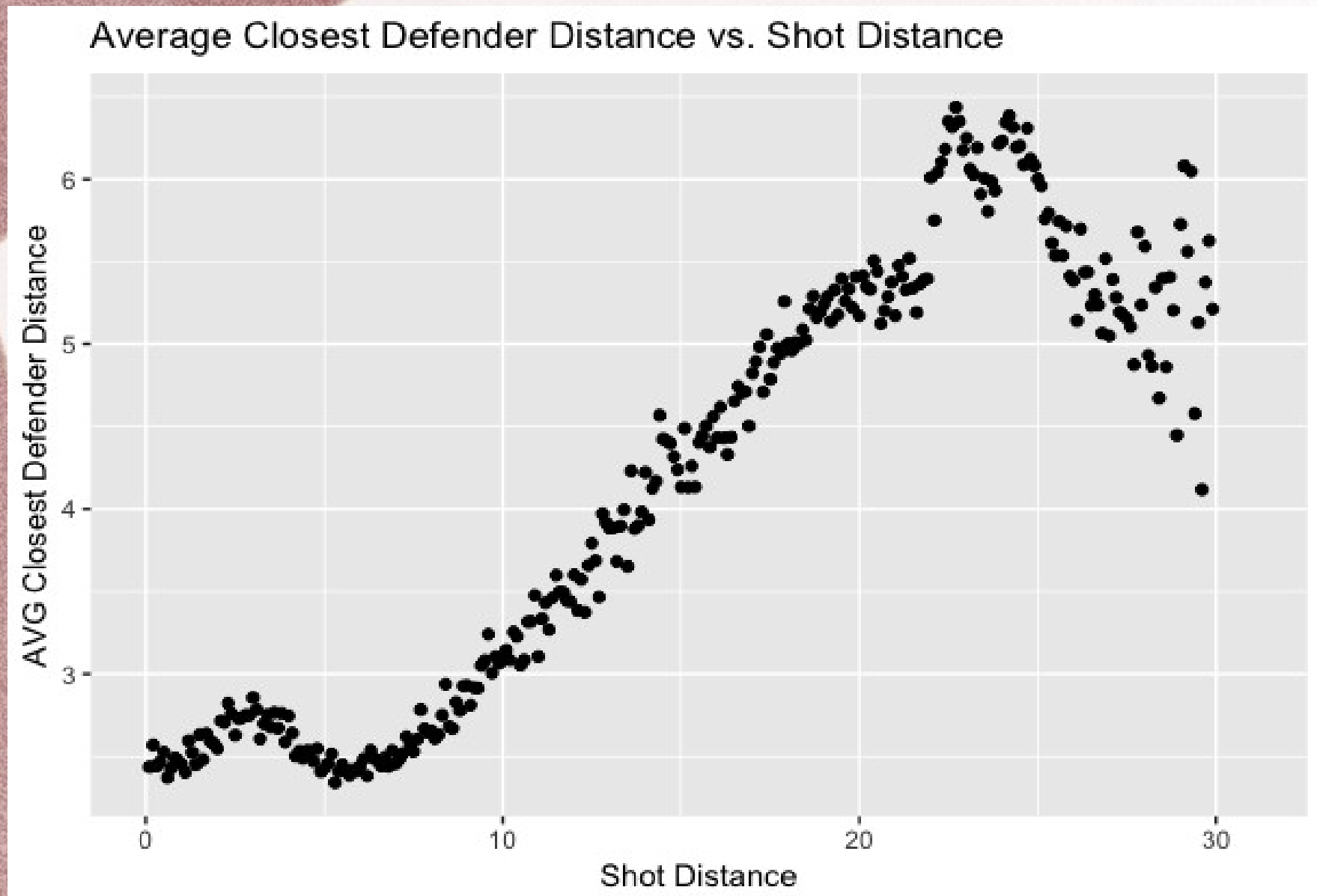
DEFENDER  
NAME

GAME  
CLOCK

SHOT  
CLOCK



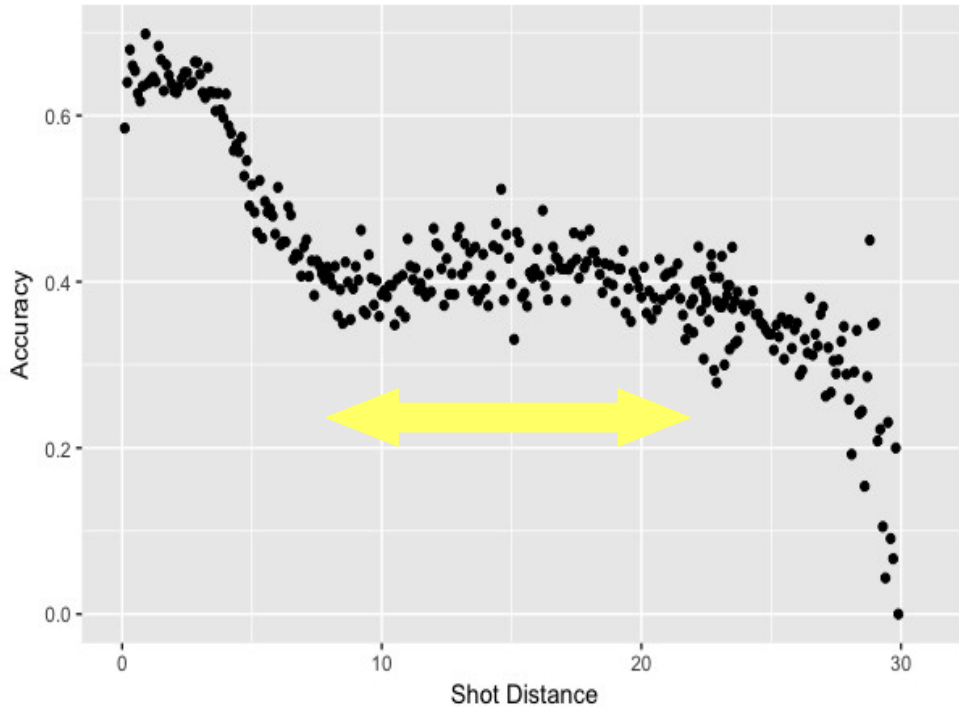
# ***Defender Distance vs. Shot Distance***



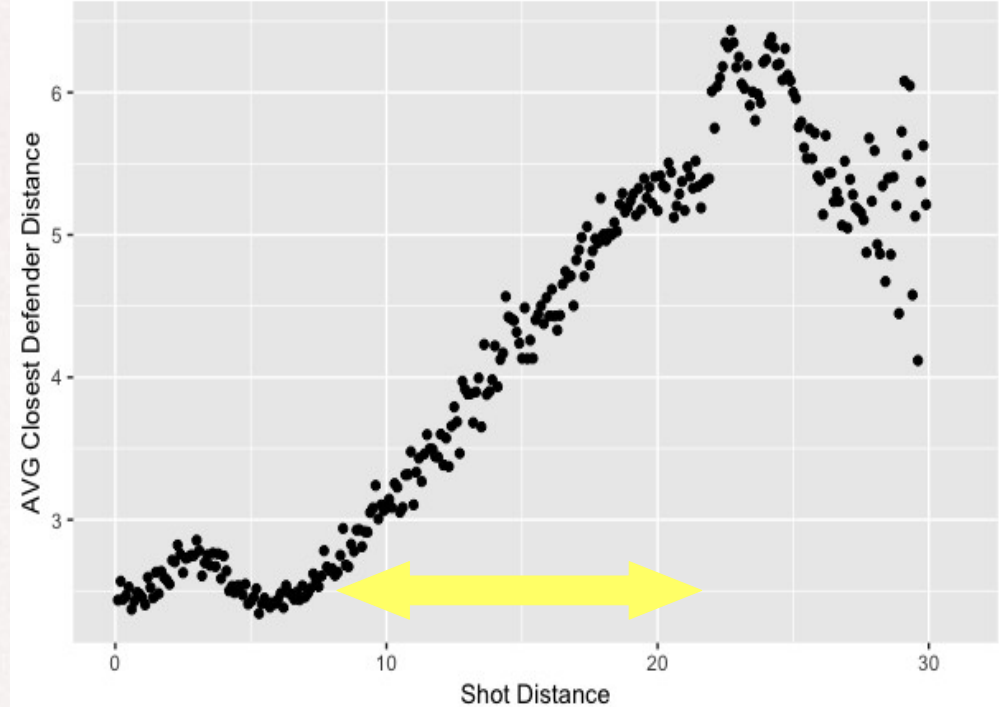


# *Compare the 2 graphs:*

Accuracy vs. Shot Distance



Average Closest Defender Distance vs. Shot Distance

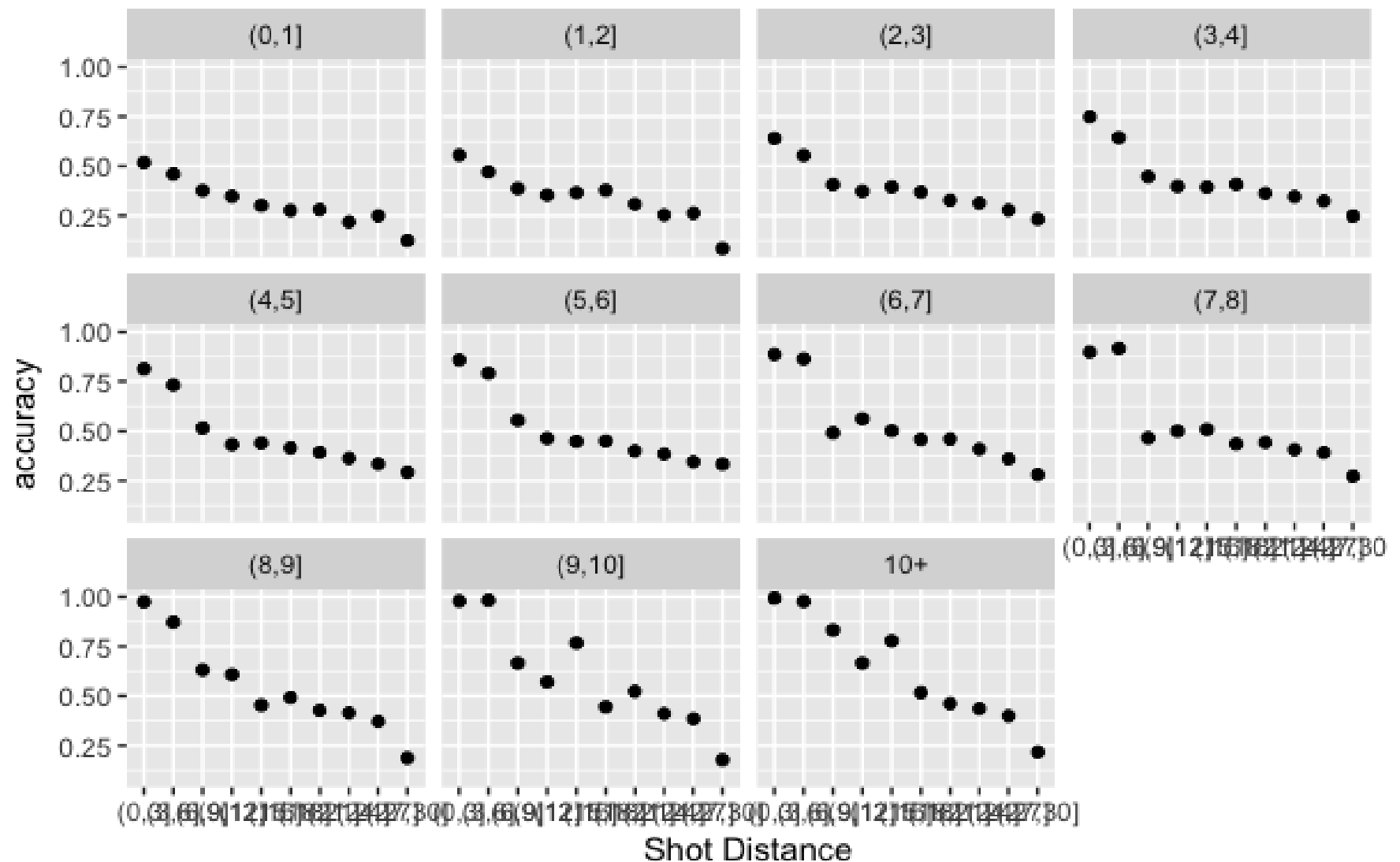


**Defensive playing style affecting shot accuracy between 10-20 feet?**

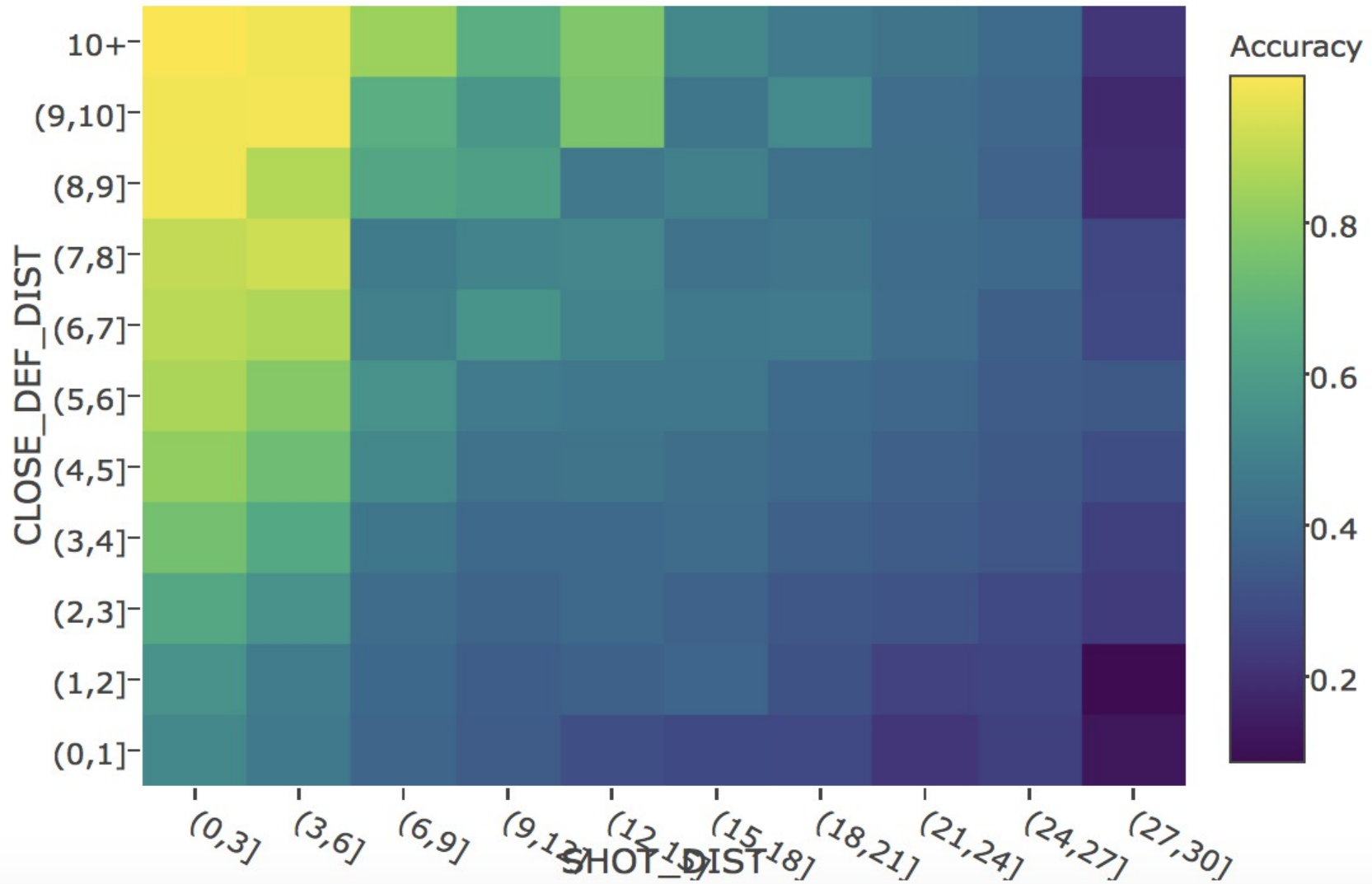


# Control CDD:

Accuracy vs. Shot Distance for ~constant Closest Defender Distance



# *Control CDD, Heat Map*

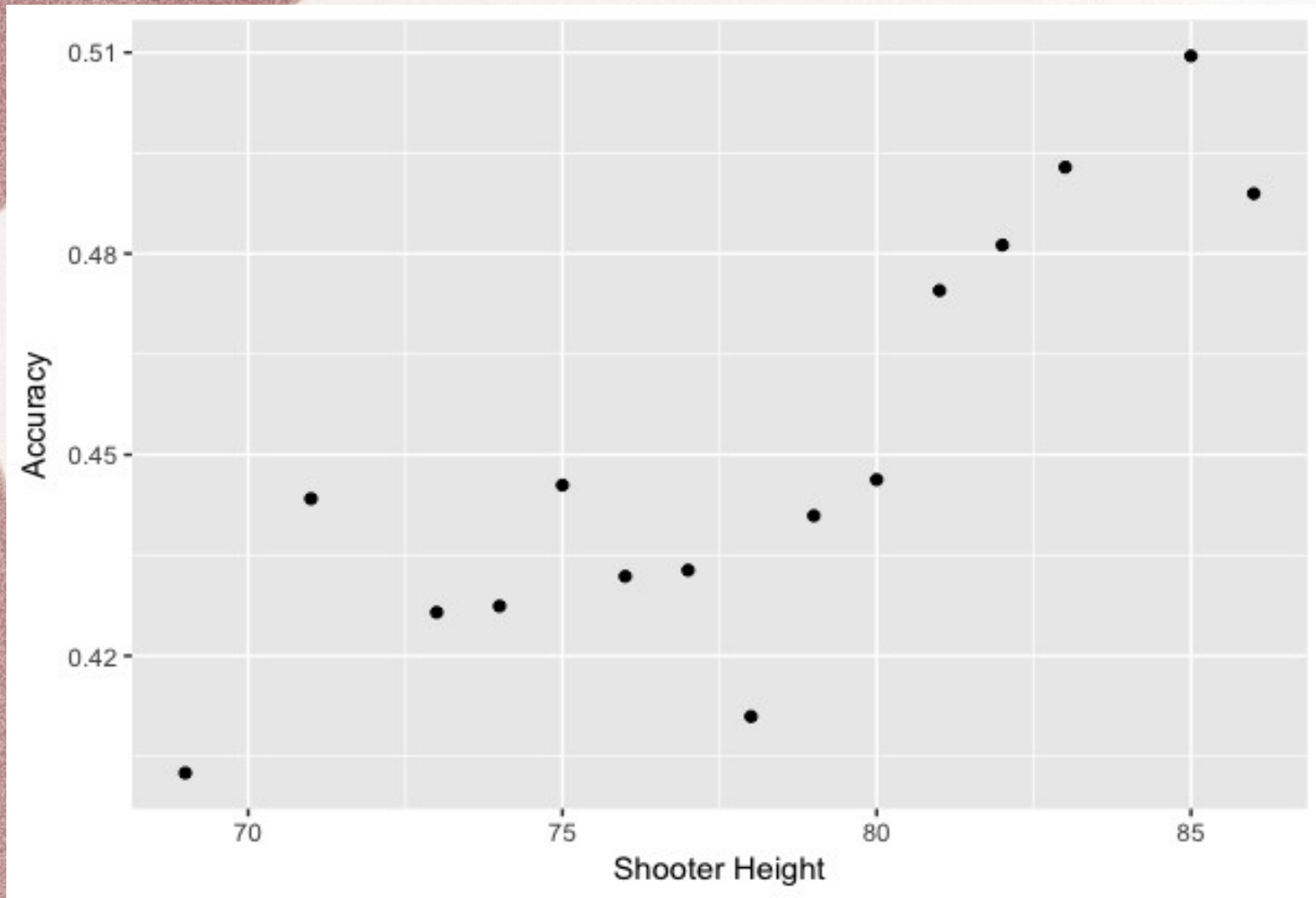




# ***Now let's investigate shooter height***

- Shot accuracy?
- Shot selection?
- Defender distance?

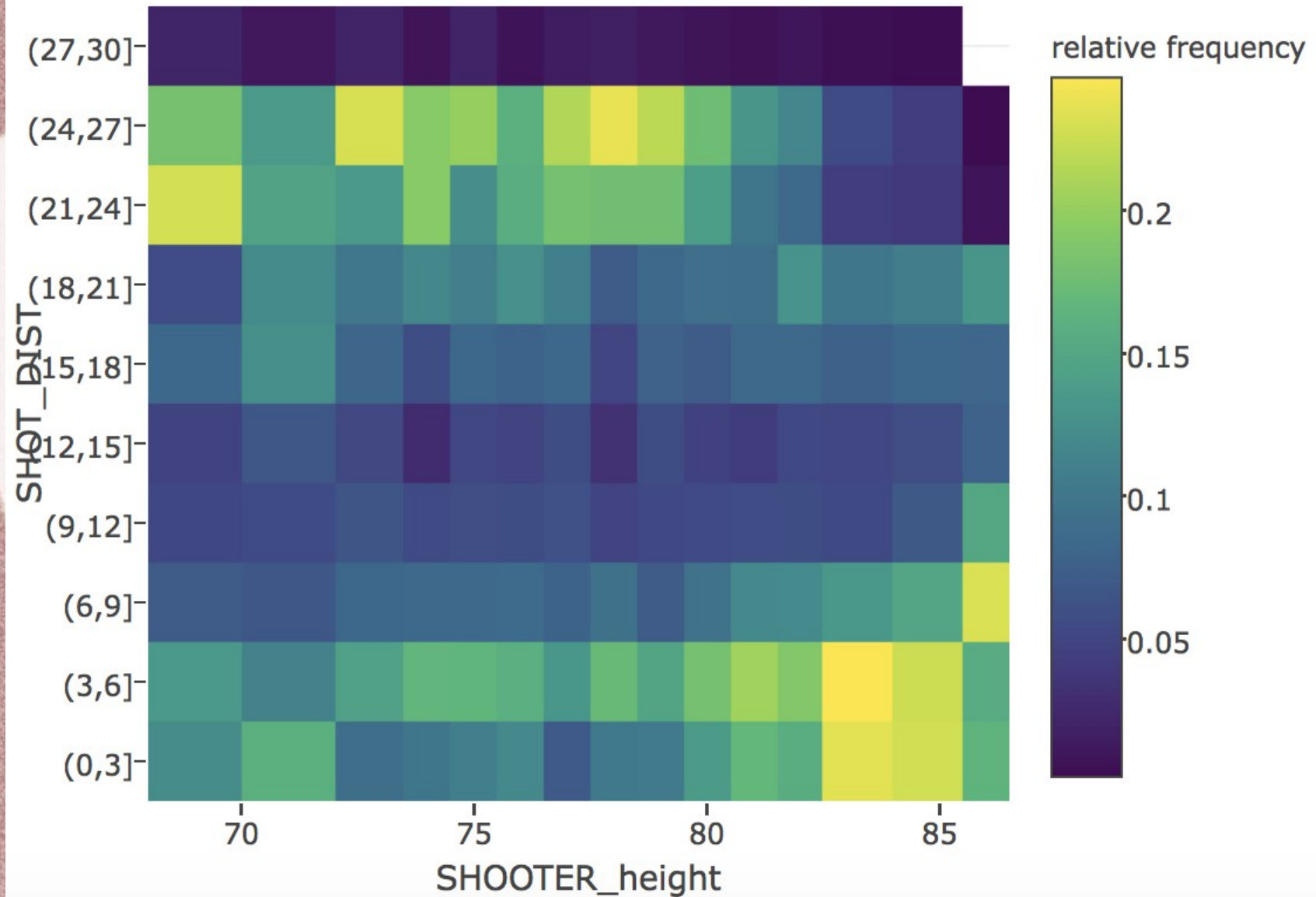
# ***Shooter Height mean accuracy***



Bigger players better shooters...?

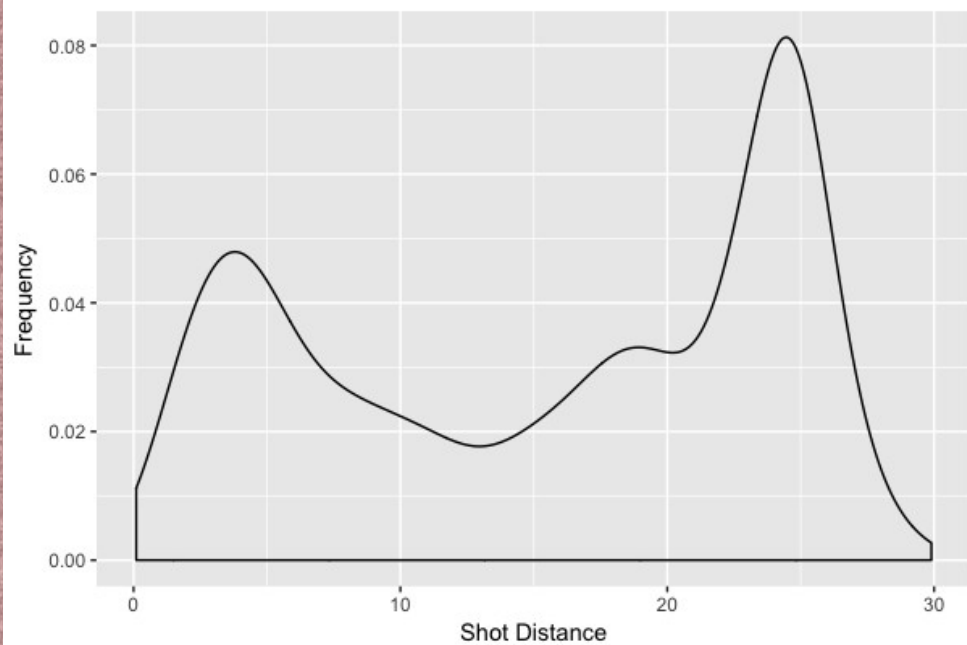


# ***Shot Distribution:***

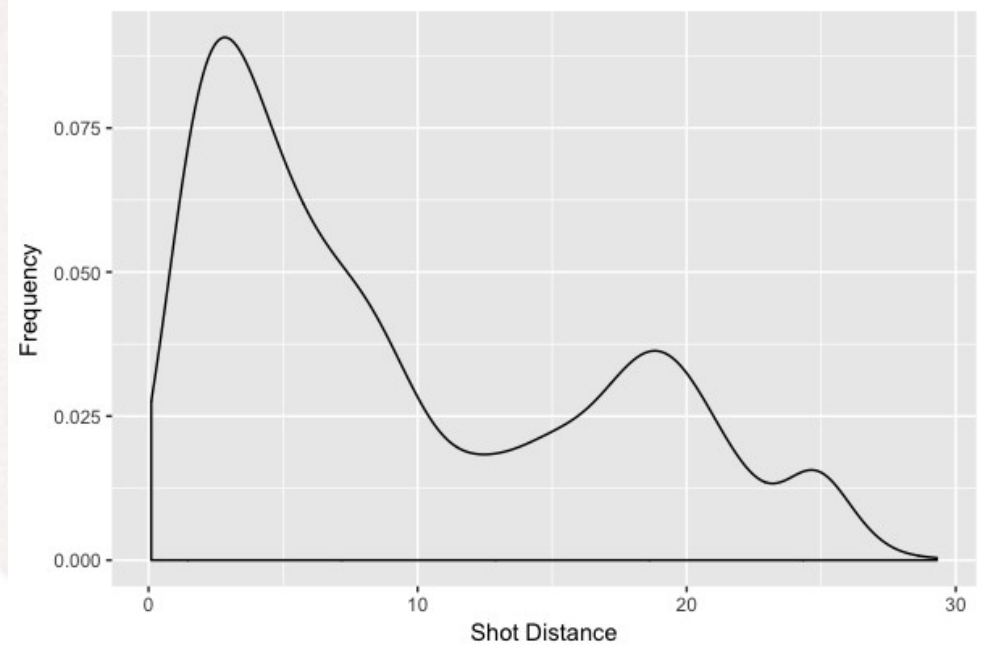


# ***Shot distribution continued:***

Shot distribution of 73 inch players

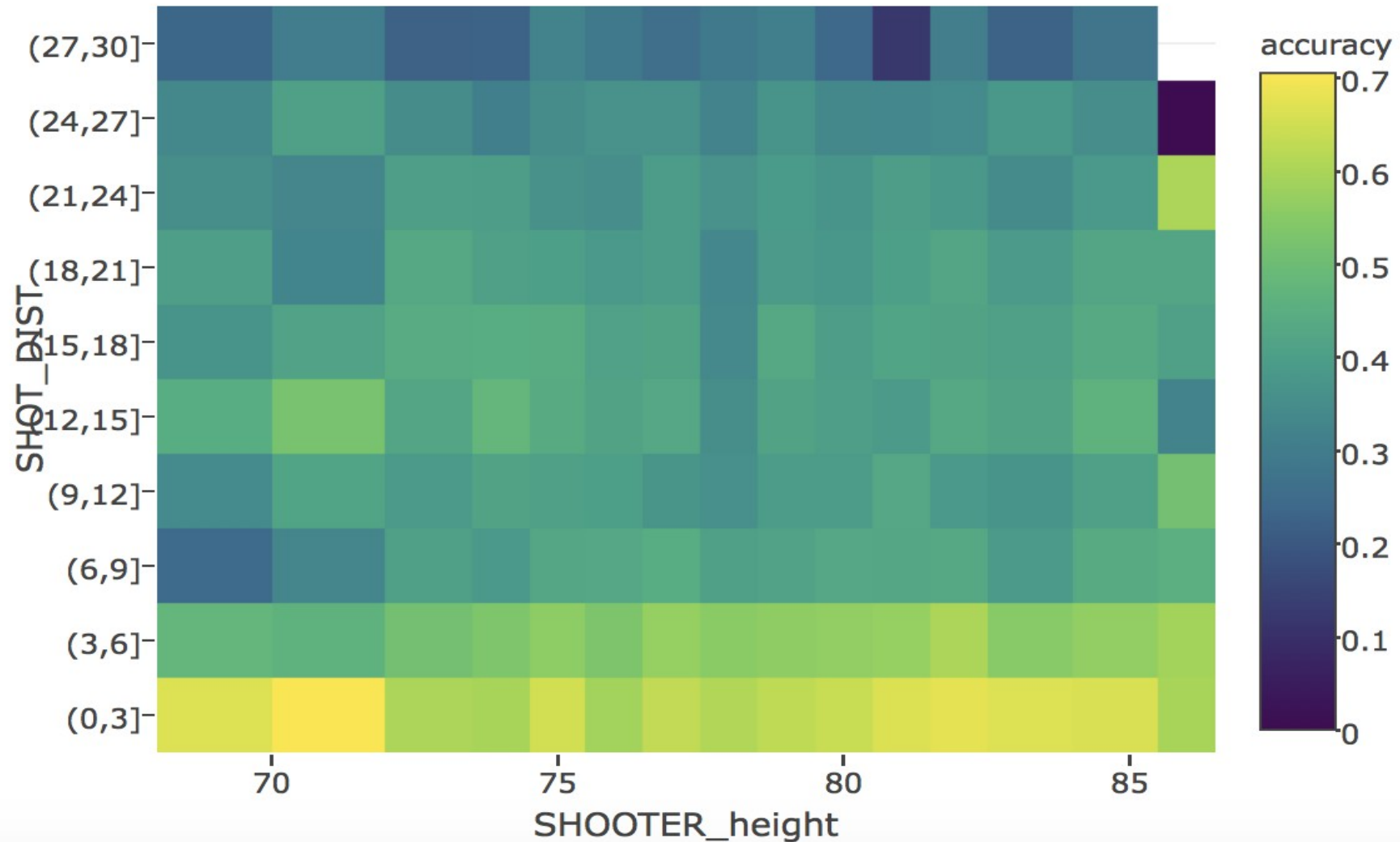


Shot distribution of 85 inch players



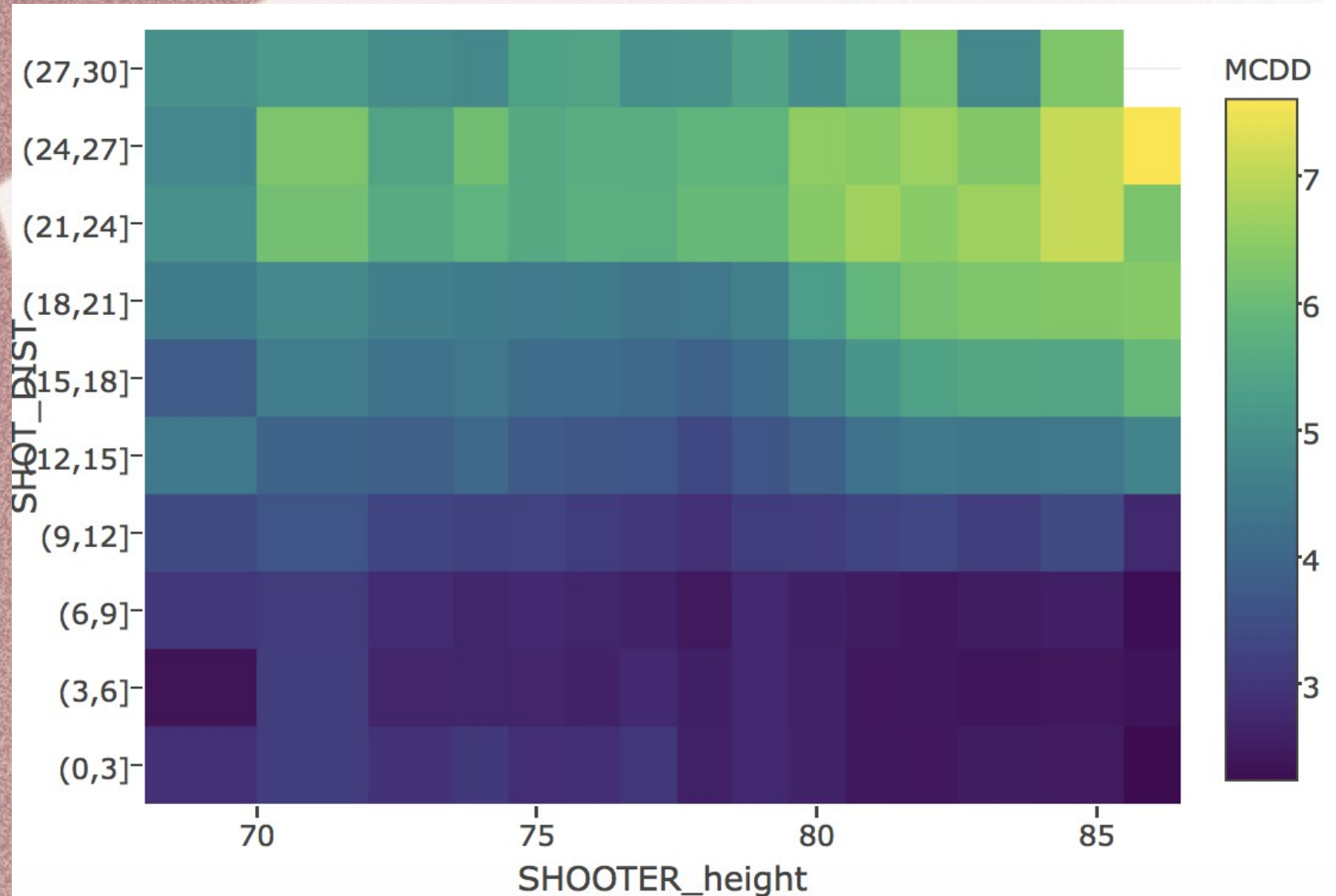


# *Accuracy vs. Shooter Height/Shot Distance*



Everyone equally accurate (regardless of size)?

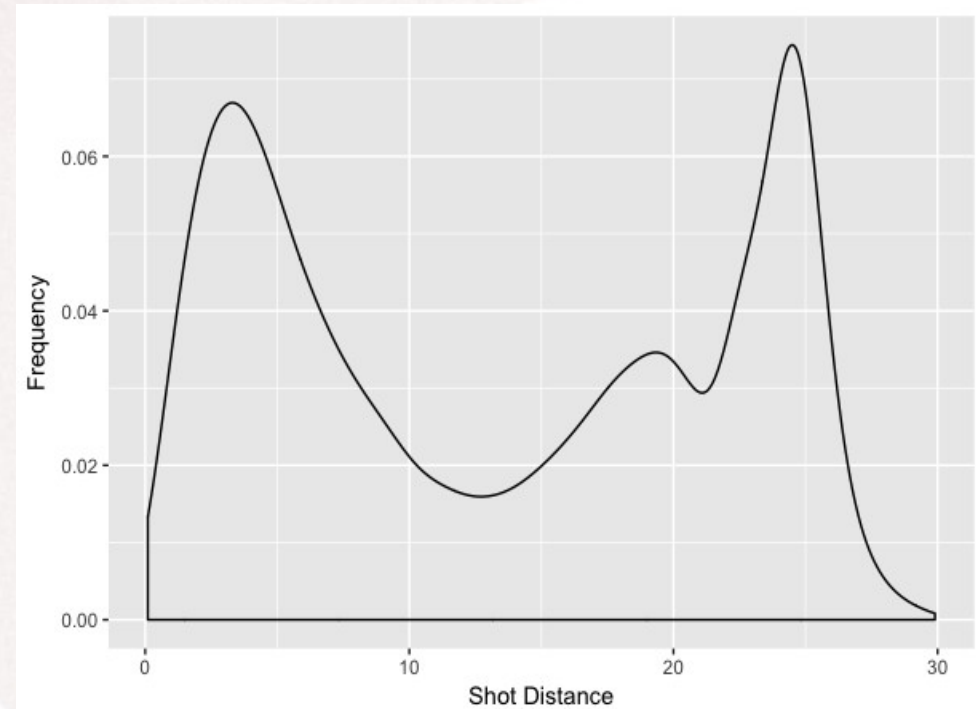
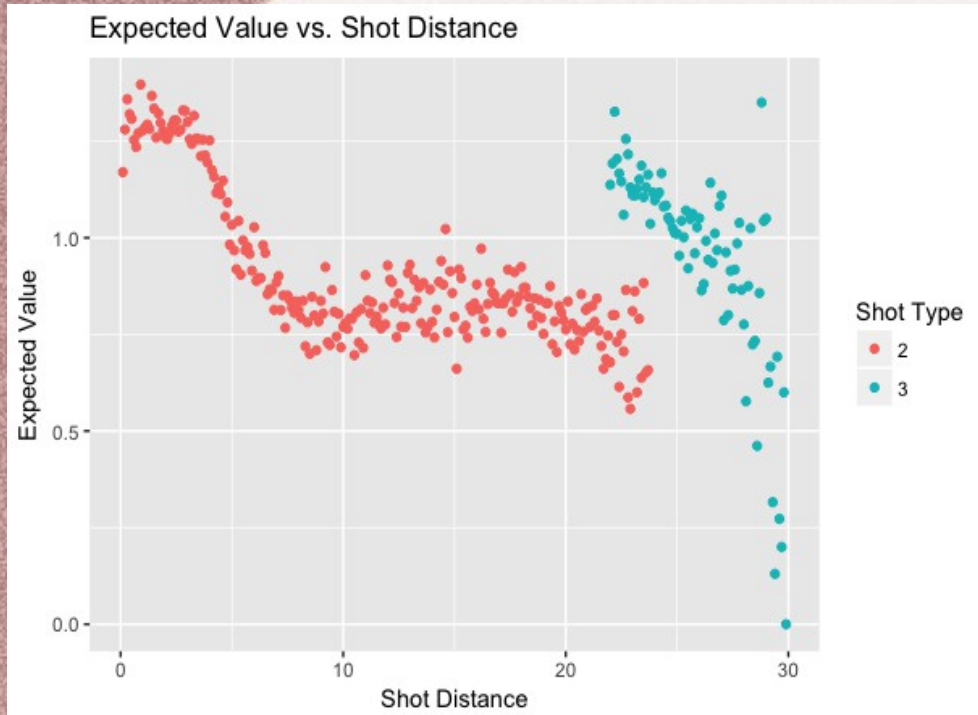
# ***Average CDD(Shooter height, Shot Distance)***





***Where's the best spot (distance in our case) to shoot from?***

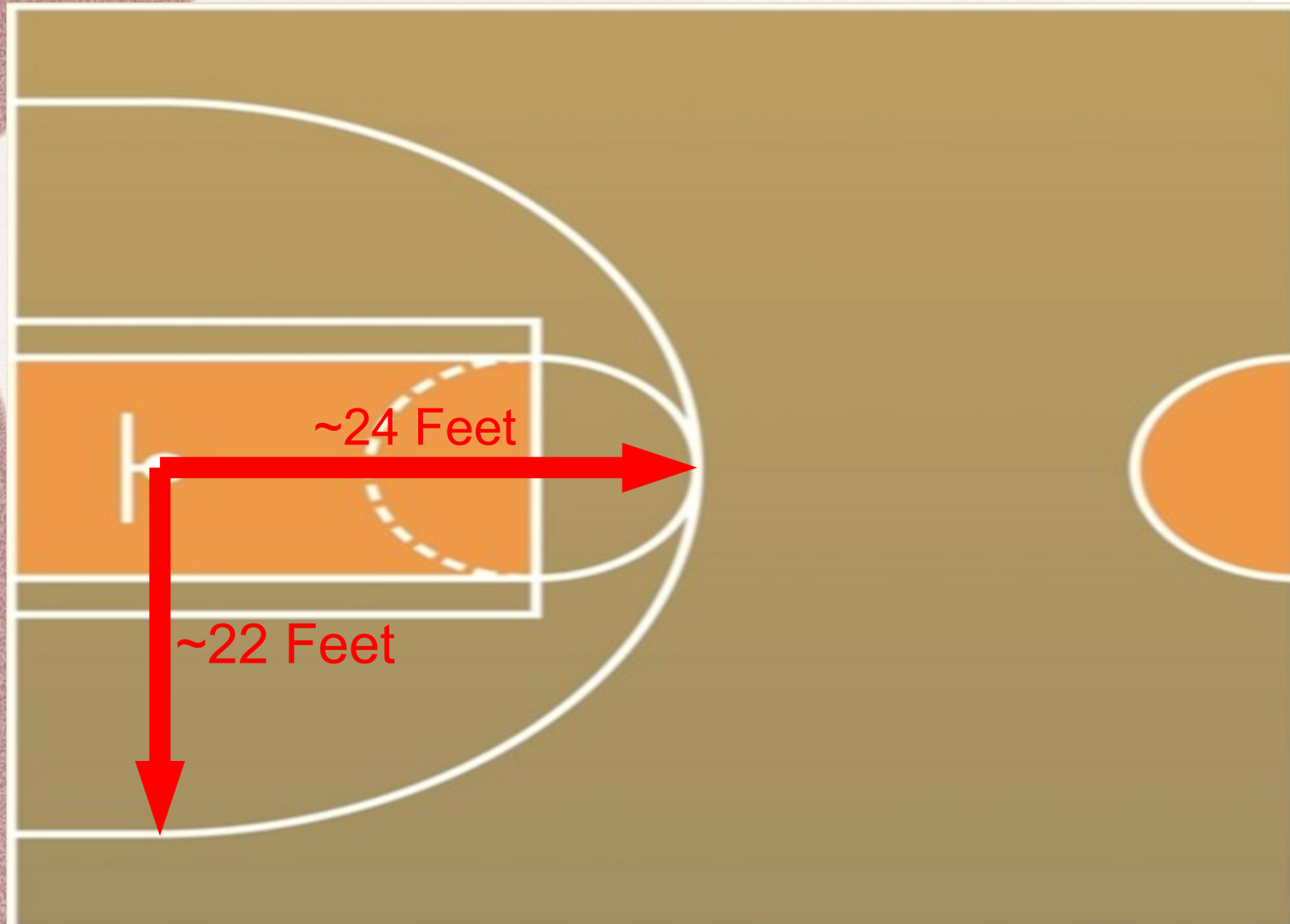
# *Where's the best spot (distance in our case) to shoot from?*



-Highest EV shots are ~ the most often shots taken



# ***Long 2-pointers/Short 3-pointers***



## ***Future Work***

- 2 dimensional shot data
- More sophisticated statistical analysis
- Incorporate defender height/arm length into a defender metric.



***THE END***