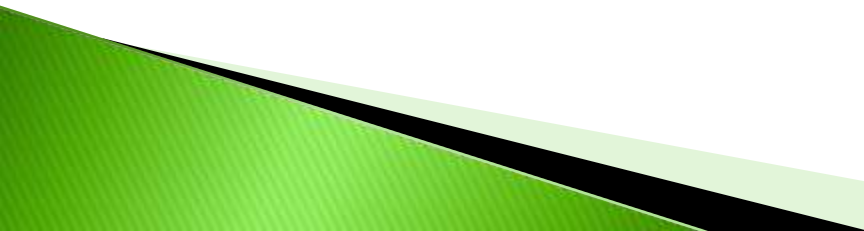


# Do Umpires Give Preferential Treatment To Some Players?

Historical and  
Analytical  
Perspectives

Patrick Kilgo, Hillary Superak, Lisa Elon,  
Mark Katz, Paul Weiss, Jeff Switchenko, Brian  
Schmotzer and Lance Waller

# Preferential Treatment?

- ▶ It is widely supposed (but unproven) that umpires give preferences to some players
  - ▶ Various theories:
    - Umpires give veteran players more breaks
    - Umpires give better players more breaks
    - Umpires “haze” rookies
  - ▶ Umpires deny (for attribution) any deviation from neutrality, presumably in order to maintain their reputation for integrity and impartiality
- 

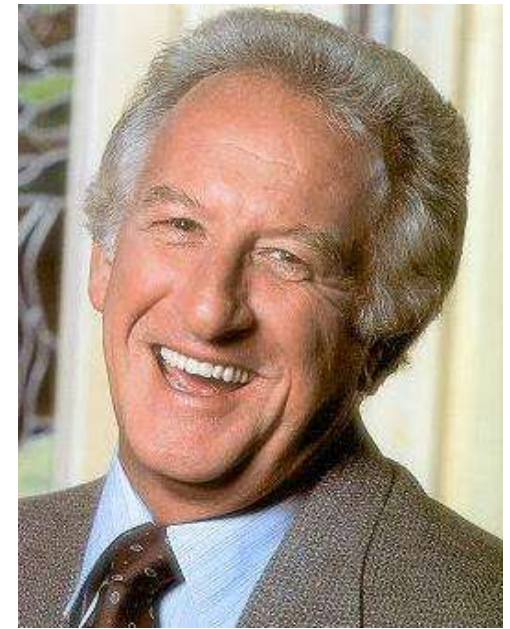
# Stories Abound

- ▶ Rogers Hornsby at the plate watches a “ball” get called by Hall of Fame umpire Bill Klem:
  - **Young Pitcher:** “You blind so—and so. That was a strike.”
  - **Bill Klem:** “Son, when you pitch a strike, Mr. Hornsby will let you know.”



# Stories Abound

- ▶ Rookie Bob Uecker batting against Don Drysdale gets a pitch in the other batters box called for a strike:



- **Bob Uecker:** “That wasn’t a strike!”
- **Umpire Jocko Conlon:** “So’s the next one.”

Zoss and Bowman. 1989.

*Diamonds in the Rough*

- ▶ “...umpires admit that they find certain players great gentlemen. Usually these turn out to be the heavy hitters, a Stan Musial, a Ted Williams; these men, it seems, seldom if ever questioned a call by an umpire. Since, by definition, great hitters must know something about pitchers that other hitters don’t, there may be some pressure on umpires to be influenced by what heavy hitters refuse to strike at” (Zoss and Bowman, 1989: 303).

# Some players admit it ... Jack Morris

- ▶ “The Tigers’ Jack Morris says he gets, in general, a bigger strike zone as an established veteran than he had as a rookie ‘and it should be that way.’”
- ▶ “Morris remembers, ‘when Carl Yastrzemski was up, if Carl didn’t swing, it was not a strike. And I mean to tell you I threw balls right down the middle of the plate, belt-high, and you could not doubt it, but if Carl didn’t swing, it was not a strike.’ ”
  - (Will, George. 1991. *Men at Work: The Craft of Baseball*)




# Some players admit it ...

## Reggie Jackson




- ▶ “I had umpires say to me toward the end of my career, ‘if you don’t swing today, it ain’t a strike.’”
- ▶ “I got breaks toward the end of my career, for sure ... Guys like Tony Gwynn, Pete Rose, Joe Morgan, Albert Pujols, even Barry Bonds...you get a great hitter up there, a guy with a good eye who doesn’t swing at the ball off the plate, and they’re apt to get the call, just like the great pitcher does.”
  - Gibson, Bob, Reggie Jackson, and Lonnie Wheeler. 2009. *Sixty Feet, Six Inches: A Hall of Fame Pitcher & a Hall of Fame Hitter Talk about How the Game is Played.*

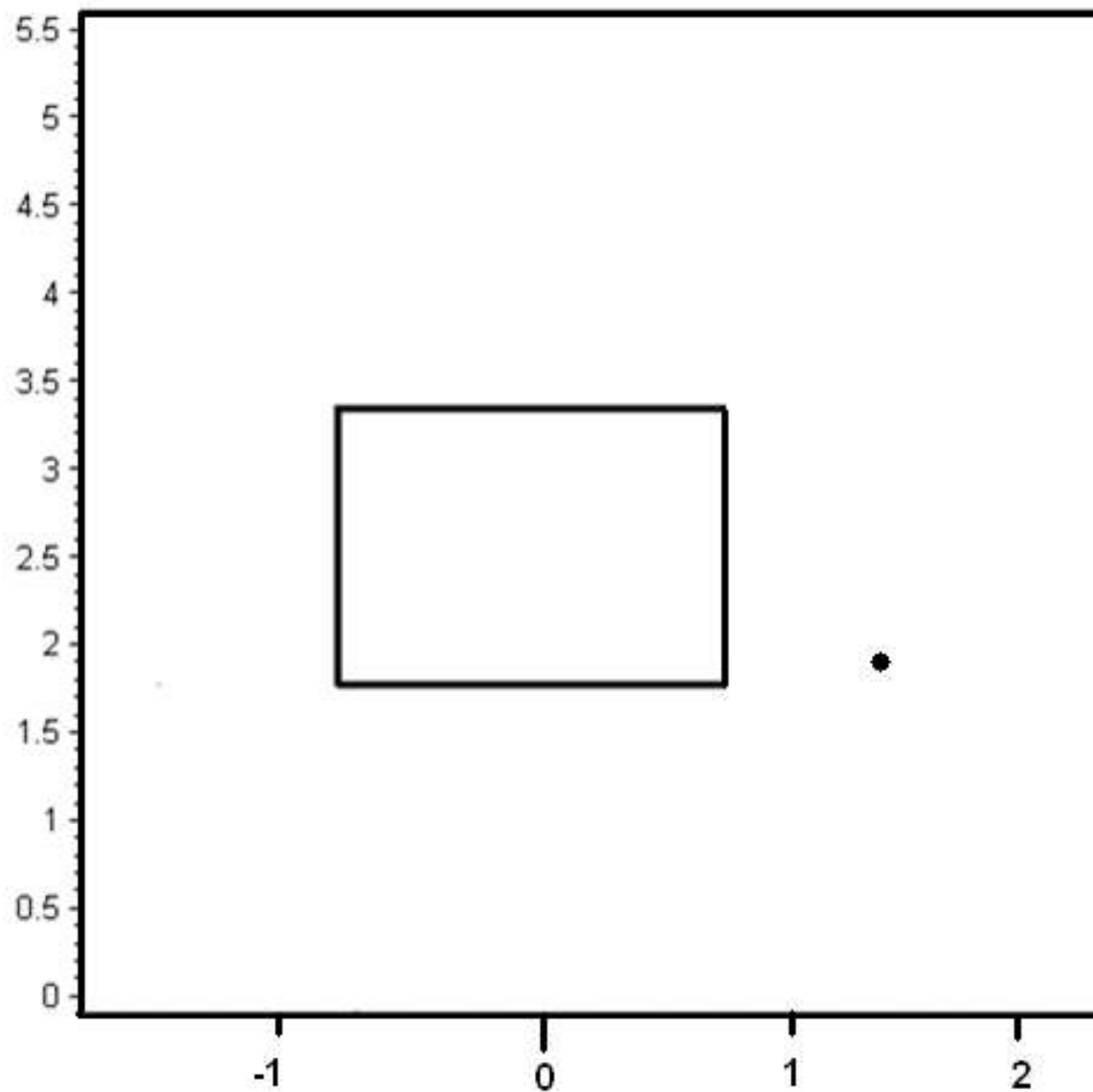
# Testing the Theory: PITCH F/X

- ▶ Used to record the in-flight position of a pitched baseball
  - ▶ Three high-tech cameras are used to make the calculations
  - ▶ Provides an objective look into the batter-pitcher standoff
  - ▶ Captures data on every single pitch in every single game
- 


# PITCH F/X Measurements – For Our Purposes

- ▶ **The Characters Involved:**
    - Pitcher, Batter and Umpire
  - ▶ **Strike Zone:**
    - Top/Bottom: Measured distance from ground
    - Left/Right: Defined by edges of plate
  - ▶ **Pitch Location:**
    - Coordinates on vertical plane at front of home plate
  - ▶ **Pitch Result:**
    - Ball or Strike
- 


# Johnny Damon Controversial Pitch



# Our Analytical Approach

- ▶ Included any pitch that required a judgment call from the umpire in 2009 and 2010:
    - Called balls
    - Called strikes
  - ▶ Excluded intentional balls and balls in the dirt
  - ▶ Defined a strike as any part of the ball touching an edge of the strike zone
- 

# Our Analytical Approach

- ▶ Examined 738,496 calls from 2009–2010
  - ▶ Added player-specific information from Lahman database
  - ▶ Classified each player by years of experience based on debut date
- 

# Umpire Judgment Calls

- ▶ Two types of correct calls:
  - The pitch was called a BALL and Pitch F/X agrees
  - The pitch was called a STRIKE and Pitch F/X agrees
- ▶ Two types of incorrect calls:
  - The pitch was called a STRIKE, but Pitch F/X determined it to be a BALL (“False Strike”)
  - The pitch was called a BALL, but Pitch F/X determined it to be a STRIKE (“False Ball”)


		Umpire Call	
		BALL	STRIKE
Pitch F/X	BALL	True Ball	False Strike
	STRIKE	False Ball	True Strike

# False Strikes and Balls

- ▶ Total Umpire Accuracy Rate: 84.9%
- ▶ False Strike Rate: 7.4%
- ▶ False Ball Rate: 7.7%



# If The Myths Were True Then We Might Expect ...

- ▶ Higher false strike rates for veteran pitchers compared to less-experienced
  - ▶ Lower false strike rates for veteran hitters compared to less-experienced
  - ▶ Vice versa for false ball rates
  - ▶ Similar expectations for “good” players compared to “less good”
- 

# False Strike Percentages

Pitcher Experience	Batter Experience															
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs	8-9 yrs	9-10 yrs	10-11 yrs	11-12 yrs	12-13 yrs	13-14 yrs	14-15 yrs	15+ yrs
0-1 yrs	7.4	7.4	7.9	7.5	7.1	7.0	7.3	7.0	7.0	6.5	5.9	6.7	6.7	6.3	7.2	6.7
1-2 yrs	6.6	7.4	7.3	7.4	6.8	6.8	7.1	7.7	6.9	6.7	7.5	6.7	6.5	6.7	7.4	6.2
2-3 yrs	7.6	7.1	7.1	6.8	7.3	6.8	6.9	7.0	6.9	6.5	6.9	7.2	6.5	6.3	7.5	7.1
3-4 yrs	7.5	7.6	7.2	8.0	7.6	7.3	7.4	7.6	7.2	7.2	6.8	7.0	7.0	7.4	7.2	6.6
4-5 yrs	7.5	8.3	7.7	7.4	7.2	6.7	7.1	7.3	7.1	6.7	7.1	6.6	6.5	6.3	5.8	6.8
5-6 yrs	7.1	7.8	7.7	7.6	7.4	7.8	7.8	6.5	7.1	6.8	5.7	6.0	5.5	6.5	7.1	7.0
6-7 yrs	7.9	7.9	7.2	7.3	7.6	6.7	6.7	8.0	6.6	6.9	6.6	7.0	7.9	7.2	6.9	7.1
7-8 yrs	7.9	8.1	7.3	7.5	7.8	7.3	7.6	8.3	7.8	6.5	6.8	6.4	7.1	8.2	7.7	7.9
8-9 yrs	8.6	8.7	8.0	8.1	7.5	7.9	8.4	8.2	7.5	7.2	6.9	7.9	7.1	7.5	7.7	9.1
9-10 yrs	8.1	8.6	8.4	9.0	7.8	7.2	7.5	8.1	7.2	8.5	7.6	6.3	7.1	6.8	7.2	8.9
10-11 yrs	8.3	8.1	8.2	7.9	8.9	7.5	8.3	7.0	8.1	6.7	8.2	6.9	8.8	5.9	10.7	6.8
11-12 yrs	9.3	9.7	9.3	8.2	8.2	7.2	8.9	6.9	7.0	7.6	6.5	8.9	9.0	8.5	8.2	5.4
12-13 yrs	9.5	11.0	8.5	10.2	7.9	8.9	8.8	9.9	7.8	7.1	8.0	7.0	6.9	10.0	6.5	10.3
13-14 yrs	9.5	9.4	9.2	11.6	9.0	10.0	8.0	8.6	8.7	10.9	12.7	8.3	8.4	5.6	6.8	11.3
14-15 yrs	7.7	6.2	8.5	7.6	10.3	9.6	8.4	8.6	8.8	6.1	7.7	9.8	6.8	10.7	8.6	10.8
15+ yrs	7.8	9.3	9.2	8.3	9.4	9.8	7.2	8.9	7.8	8.3	8.5	8.9	6.7	7.9	11.2	8.5

Key: < 7.0 7.0 - 8.5 > 8.5

# False Strike Percentages

Pitcher Experience	Batter Experience															
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs	8-9 yrs	9-10 yrs	10-11 yrs	11-12 yrs	12-13 yrs	13-14 yrs	14-15 yrs	15+ yrs
0-1 yrs	7.4	7.4	7.9	7.5	7.1	7.0	7.3	7.0	7.0	6.5	5.9	6.7	6.7	6.3	7.2	6.7
1-2 yrs	6.6	7.4	7.3	7.4	6.8	6.8	7.1	7.7	6.9	6.7	7.5	6.7	6.5	6.7	7.4	6.2
2-3 yrs	7.6	7.1	7.1	6.8	7.3	6.8	6.9	7.0	6.9	6.5	6.9	7.2	6.5	6.3	7.5	7.1
3-4 yrs	7.5	7.6	7.2	8.0	7.6	7.3	7.4	7.6	7.2	7.2	6.8	7.0	7.0	7.4	7.2	6.6
4-5 yrs	7.5	8.3	7.7	7.4	7.2	6.7	7.1	7.3	7.1	6.7	7.1	6.6	6.5	6.3	5.8	6.8
5-6 yrs	7.1	7.8	7.7	7.6	7.4	7.8	7.8	6.5	7.1	6.8	5.7	6.0	5.5	6.5	7.1	7.0
6-7 yrs	7.9	7.9	7.2	7.3	7.6	6.7	6.7	8.0	6.6	6.9	6.6	7.0	7.9	7.2	6.9	7.1
7-8 yrs	7.9	8.1	7.3	7.5	7.8	7.3	7.6	8.3	7.8	6.5	6.8	6.4	7.1	8.2	7.7	7.9
8-9 yrs	8.6	8.7	8.0	8.1	7.5	7.9	8.4	8.2	7.5	7.2	6.9	7.9	7.1	7.5	7.7	9.1
9-10 yrs	8.1	8.6	8.4	9.0	7.8	7.2	7.5	8.1	7.2	8.5	7.6	6.3	7.1	6.8	7.2	8.9
10-11 yrs	8.3	8.1	8.2	7.9	8.9	7.5	8.3	7.0	8.1	6.7	8.2	6.9	8.8	5.9	10.7	6.8
11-12 yrs	9.3	9.7	9.3	8.2	8.2	7.2	8.9	6.9	7.0	7.6	6.5	8.9	9.0	8.5	8.2	5.4
12-13 yrs	9.5	11.0	8.5	10.2	7.9	8.9	8.8	9.9	7.8	7.1	8.0	7.0	6.9	10.0	6.5	10.3
13-14 yrs	9.5	9.4	9.2	11.6	9.0	10.0	8.0	8.6	8.7	10.9	12.7	8.3	8.4	5.6	6.8	11.3
14-15 yrs	7.7	6.2	8.5	7.6	10.3	9.6	8.4	8.6	8.8	6.1	7.7	9.8	6.8	10.7	8.6	10.8
15+ yrs	7.8	9.3	9.2	8.3	9.4	9.8	7.2	8.9	7.8	8.3	8.5	8.9	6.7	7.9	11.2	8.5

Key: < 7.0 7.0 - 8.5 > 8.5

# False Strike Percentages

Pitcher Experience	Batter Experience															
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs	8-9 yrs	9-10 yrs	10-11 yrs	11-12 yrs	12-13 yrs	13-14 yrs	14-15 yrs	15+ yrs
0-1 yrs	7.4	7.4	7.9	7.5	7.1	7.0	7.3	7.0	7.0	6.5	5.9	6.7	6.7	6.3	7.2	6.7
1-2 yrs	6.6	7.4	7.3	7.4	6.8	6.8	7.1	7.7	6.9	6.7	7.5	6.7	6.5	6.7	7.4	6.2
2-3 yrs	7.6	7.1	7.1	6.8	7.3	6.8	6.9	7.0	6.9	6.5	6.9	7.2	6.5	6.3	7.5	7.1
3-4 yrs	7.5	7.6	7.2	8.0	7.6	7.3	7.4	7.6	7.2	7.2	6.8	7.0	7.0	7.4	7.2	6.6
4-5 yrs	7.5	8.3	7.7	7.4	7.2	6.7	7.1	7.3	7.1	6.7	7.1	6.6	6.5	6.3	5.8	6.8
5-6 yrs	7.1	7.8	7.7	7.6	7.4	7.8	7.8	6.5	7.1	6.8	5.7	6.0	5.5	6.5	7.1	7.0
6-7 yrs	7.9	7.9	7.2	7.3	7.6	6.7	6.7	8.0	6.6	6.9	6.6	7.0	7.9	7.2	6.9	7.1
7-8 yrs	7.9	8.1	7.3	7.5	7.8	7.3	7.6	8.3	7.8	6.5	6.8	6.4	7.1	8.2	7.7	7.9
8-9 yrs	8.6	8.7	8.0	8.1	7.5	7.9	8.4	8.2	7.5	7.2	6.9	7.9	7.1	7.5	7.7	9.1
9-10 yrs	8.1	8.6	8.4	9.0	7.8	7.2	7.5	8.1	7.2	8.5	7.6	6.3	7.1	6.8	7.2	8.9
10-11 yrs	8.3	8.1	8.2	7.9	8.9	7.5	8.3	7.0	8.1	6.7	8.2	6.9	8.8	5.9	10.7	6.8
11-12 yrs	9.3	9.7	9.3	8.2	8.2	7.2	8.9	6.9	7.0	7.6	6.5	8.9	9.0	8.5	8.2	5.4
12-13 yrs	9.5	11.0	8.5	10.2	7.9	8.9	8.8	9.9	7.8	7.1	8.0	7.0	6.9	10.0	6.5	10.3
13-14 yrs	9.5	9.4	9.2	11.6	9.0	10.0	8.0	8.6	8.7	10.9	12.7	8.3	8.4	5.6	6.8	11.3
14-15 yrs	7.7	6.2	8.5	7.6	10.3	9.6	8.4	8.6	8.8	6.1	7.7	9.8	6.8	10.7	8.6	10.8
15+ yrs	7.8	9.3	9.2	8.3	9.4	9.8	7.2	8.9	7.8	8.3	8.5	8.9	6.7	7.9	11.2	8.5

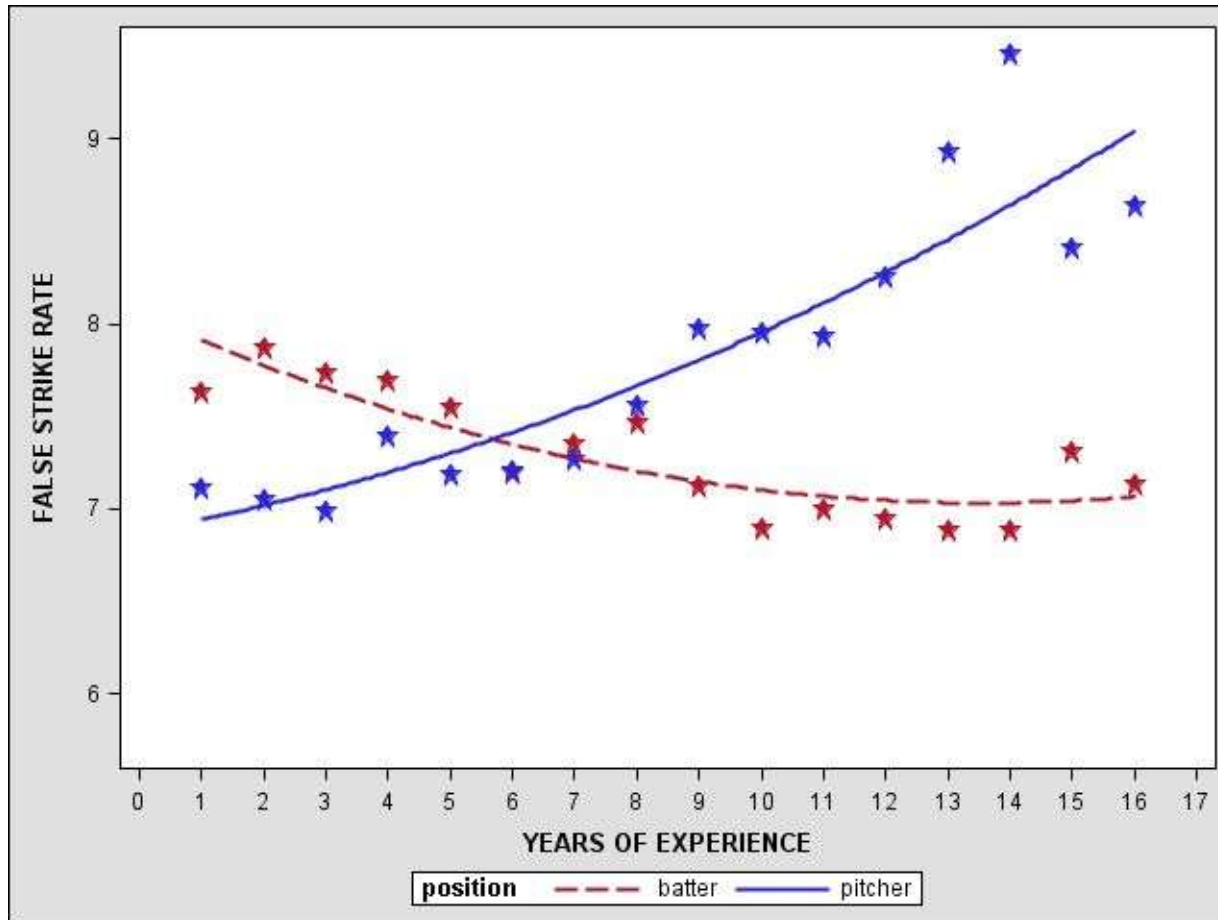
Key: < 7.0 7.0 - 8.5 > 8.5

# False Strike Percentages


Pitcher Experience	Batter Experience															
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs	8-9 yrs	9-10 yrs	10-11 yrs	11-12 yrs	12-13 yrs	13-14 yrs	14-15 yrs	15+ yrs
0-1 yrs	7.4	7.4	7.9	7.5	7.1	7.0	7.3	7.0	7.0	6.5	5.9	6.7	6.7	6.3	7.2	6.7
1-2 yrs	6.6	7.4	7.3	7.4	6.8	6.8	7.1	7.7	6.9	6.7	7.5	6.7	6.5	6.7	7.4	6.2
2-3 yrs	7.6	7.1	7.1	6.8	7.3	6.8	6.9	7.0	6.9	6.5	6.9	7.2	6.5	6.3	7.5	7.1
3-4 yrs	7.5	7.6	7.2	8.0	7.6	7.3	7.4	7.6	7.2	7.2	6.8	7.0	7.0	7.4	7.2	6.6
4-5 yrs	7.5	8.3	7.7	7.4	7.2	6.7	7.1	7.3	7.1	6.7	7.1	6.6	6.5	6.3	5.8	6.8
5-6 yrs	7.1	7.8	7.7	7.6	7.4	7.8	7.8	6.5	7.1	6.8	5.7	6.0	5.5	6.5	7.1	7.0
6-7 yrs	7.9	7.9	7.2	7.3	7.6	6.7	6.7	8.0	6.6	6.9	6.6	7.0	7.9	7.2	6.9	7.1
7-8 yrs	7.9	8.1	7.3	7.5	7.8	7.3	7.6	8.3	7.8	6.5	6.8	6.4	7.1	8.2	7.7	7.9
8-9 yrs	8.6	8.7	8.0	8.1	7.5	7.9	8.4	8.2	7.5	7.2	6.9	7.9	7.1	7.5	7.7	9.1
9-10 yrs	8.1	8.6	8.4	9.0	7.8	7.2	7.5	8.1	7.2	8.5	7.6	6.3	7.1	6.8	7.2	8.9
10-11 yrs	8.3	8.1	8.2	7.9	8.9	7.5	8.3	7.0	8.1	6.7	8.2	6.9	8.8	5.9	10.7	6.8
11-12 yrs	9.3	9.7	9.3	8.2	8.2	7.2	8.9	6.9	7.0	7.6	6.5	8.9	9.0	8.5	8.2	5.4
12-13 yrs	9.5	11.0	8.5	10.2	7.9	8.9	8.8	9.9	7.8	7.1	8.0	7.0	6.9	10.0	6.5	10.3
13-14 yrs	9.5	9.4	9.2	11.6	9.0	10.0	8.0	8.6	8.7	10.9	12.7	8.3	8.4	5.6	6.8	11.3
14-15 yrs	7.7	6.2	8.5	7.6	10.3	9.6	8.4	8.6	8.8	6.1	7.7	9.8	6.8	10.7	8.6	10.8
15+ yrs	7.8	9.3	9.2	8.3	9.4	9.8	7.2	8.9	7.8	8.3	8.5	8.9	6.7	7.9	11.2	8.5

Key: < 7.0 7.0 - 8.5 > 8.5

# Mean False Strike Rates



# Which Pitchers Get the Most Benefit (Minimum 700 Pitches)?

- ▶ Livan Hernandez (13.8% False Strike Rate)
  - ▶ Mariano Rivera (13.6% False Strike Rate)
  - ▶ Jake Peavy (13.6% False Strike Rate)
  - ▶ Brian Wilson (13.5% False Strike Rate)
  - ▶ Trevor Hoffman (12.8% False Strike Rate)
- 

# False Ball Percentages

Pitcher Experience	Batter Experience															
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs	8-9 yrs	9-10 yrs	10-11 yrs	11-12 yrs	12-13 yrs	13-14 yrs	14-15 yrs	15+ yrs
0-1 yrs	8.5	8.4	8.2	8.0	7.8	7.3	7.8	7.8	8.3	8.3	8.1	8.1	7.5	8.3	7.6	7.6
1-2 yrs	8.1	7.5	7.8	7.7	7.9	7.7	7.7	8.4	7.7	8.3	7.9	7.0	6.6	7.8	8.1	8.6
2-3 yrs	8.0	8.5	8.0	7.7	8.4	7.9	8.0	7.7	8.0	8.0	7.7	8.1	8.5	8.6	8.4	8.5
3-4 yrs	7.8	7.8	8.0	7.8	7.9	7.9	7.6	7.4	7.9	8.9	7.6	8.1	7.2	8.3	7.3	8.4
4-5 yrs	7.6	8.6	7.7	7.8	6.9	8.0	7.4	7.0	7.5	8.0	8.0	7.3	7.6	7.3	6.8	8.5
5-6 yrs	8.1	7.7	7.3	7.8	7.7	8.2	7.7	8.0	7.4	8.1	8.2	8.1	8.4	8.7	8.2	8.1
6-7 yrs	8.0	7.9	8.2	8.2	7.5	8.2	9.1	7.9	9.0	7.4	7.0	7.5	6.8	8.5	6.2	8.4
7-8 yrs	7.5	7.1	8.8	7.1	7.6	7.7	8.1	8.0	8.3	7.3	8.2	7.4	8.1	7.7	7.7	8.6
8-9 yrs	8.1	7.3	7.8	7.4	7.4	7.6	7.8	6.9	8.3	7.9	6.2	6.8	7.3	8.2	6.3	8.1
9-10 yrs	8.0	8.0	7.3	7.5	7.7	8.1	8.3	7.8	8.3	6.6	5.9	8.5	8.2	6.7	9.0	9.6
10-11 yrs	7.5	7.7	7.1	7.2	6.7	7.6	7.6	6.6	7.1	7.6	7.1	6.4	5.0	7.6	6.9	6.2
11-12 yrs	6.7	6.8	6.8	6.9	6.9	5.9	7.0	7.9	6.7	6.5	6.4	5.1	6.9	6.0	6.8	6.4
12-13 yrs	6.5	7.5	5.9	5.7	5.6	5.6	5.7	8.1	5.7	6.0	6.3	5.9	9.9	5.3	7.4	6.8
13-14 yrs	6.6	7.4	6.9	5.8	5.6	5.3	5.4	5.4	6.3	5.8	5.8	5.3	5.8	5.0	5.3	4.6
14-15 yrs	7.5	7.4	6.7	9.0	9.0	7.0	9.4	6.1	9.7	7.6	6.4	8.1	6.8	6.1	7.1	6.2
15+ yrs	7.2	7.5	8.0	7.1	8.4	7.1	7.1	7.5	6.5	8.5	5.9	7.4	9.9	10.6	9.6	6.3

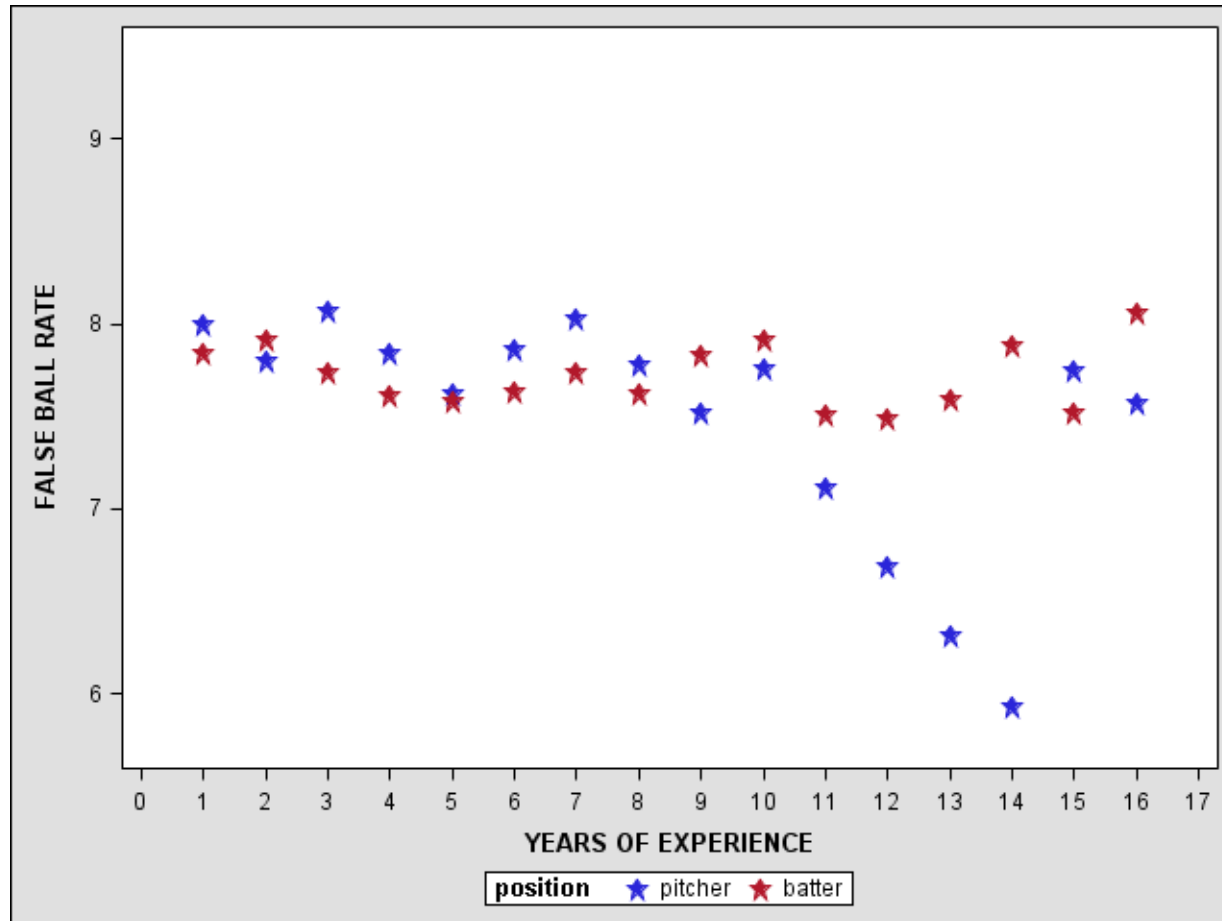
Key: <7.0 7.0-8.5 >8.5

# False BallPercentages


Pitcher Experience	Batter Experience															
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs	8-9 yrs	9-10 yrs	10-11 yrs	11-12 yrs	12-13 yrs	13-14 yrs	14-15 yrs	15+ yrs
0-1 yrs	8.5	8.4	8.2	8.0	7.8	7.3	7.8	7.8	8.3	8.3	8.1	8.1	7.5	8.3	7.6	7.6
1-2 yrs	8.1	7.5	7.8	7.7	7.9	7.7	7.7	8.4	7.7	8.3	7.9	7.0	6.6	7.8	8.1	8.6
2-3 yrs	8.0	8.5	8.0	7.7	8.4	7.9	8.0	7.7	8.0	8.0	7.7	8.1	8.5	8.6	8.4	8.5
3-4 yrs	7.8	7.8	8.0	7.8	7.9	7.9	7.6	7.4	7.9	8.9	7.6	8.1	7.2	8.3	7.3	8.4
4-5 yrs	7.6	8.6	7.7	7.8	6.9	8.0	7.4	7.0	7.5	8.0	8.0	7.3	7.6	7.3	6.8	8.5
5-6 yrs	8.1	7.7	7.3	7.8	7.7	8.2	7.7	8.0	7.4	8.1	8.2	8.1	8.4	8.7	8.2	8.1
6-7 yrs	8.0	7.9	8.2	8.2	7.5	8.2	9.1	7.9	9.0	7.4	7.0	7.5	6.8	8.5	6.2	8.4
7-8 yrs	7.5	7.1	8.8	7.1	7.6	7.7	8.1	8.0	8.3	7.3	8.2	7.4	8.1	7.7	7.7	8.6
8-9 yrs	8.1	7.3	7.8	7.4	7.4	7.6	7.8	6.9	8.3	7.9	6.2	6.8	7.3	8.2	6.3	8.1
9-10 yrs	8.0	8.0	7.3	7.5	7.7	8.1	8.3	7.8	8.3	6.6	5.9	8.5	8.2	6.7	9.0	9.6
10-11 yrs	7.5	7.7	7.1	7.2	6.7	7.6	7.6	6.6	7.1	7.6	7.1	6.4	5.0	7.6	6.9	6.2
11-12 yrs	6.7	6.8	6.8	6.9	6.9	5.9	7.0	7.9	6.7	6.5	6.4	5.1	6.9	6.0	6.8	6.4
12-13 yrs	6.5	7.5	5.9	5.7	5.6	5.6	5.7	8.1	5.7	6.0	6.3	5.9	9.9	5.3	7.4	6.8
13-14 yrs	6.6	7.4	6.9	5.8	5.6	5.3	5.4	5.4	6.3	5.8	5.8	5.3	5.8	5.0	5.3	4.6
14-15 yrs	7.5	7.4	6.7	9.0	9.0	7.0	9.4	6.1	9.7	7.6	6.4	8.1	6.8	6.1	7.1	6.2
15+ yrs	7.2	7.5	8.0	7.1	8.4	7.1	7.1	7.5	6.5	8.5	5.9	7.4	9.9	10.6	9.6	6.3

Key: <7.0    7.0-8.5    >8.5

# Threshold Graph – False Balls



# Which Batters Get the Most Preference (Minimum 700 Pitches)?

- ▶ Rob Johnson (11.4% False Ball Rate)
  - ▶ Mark DeRosa (11.4% False Ball Rate)
  - ▶ Elvis Andrus (11.4% False Ball Rate)
  - ▶ Russell Martin (10.8% False Ball Rate)
  - ▶ Jason Kendall (10.7% False Ball Rate)
- 

# Preference Toward the Best Pitchers

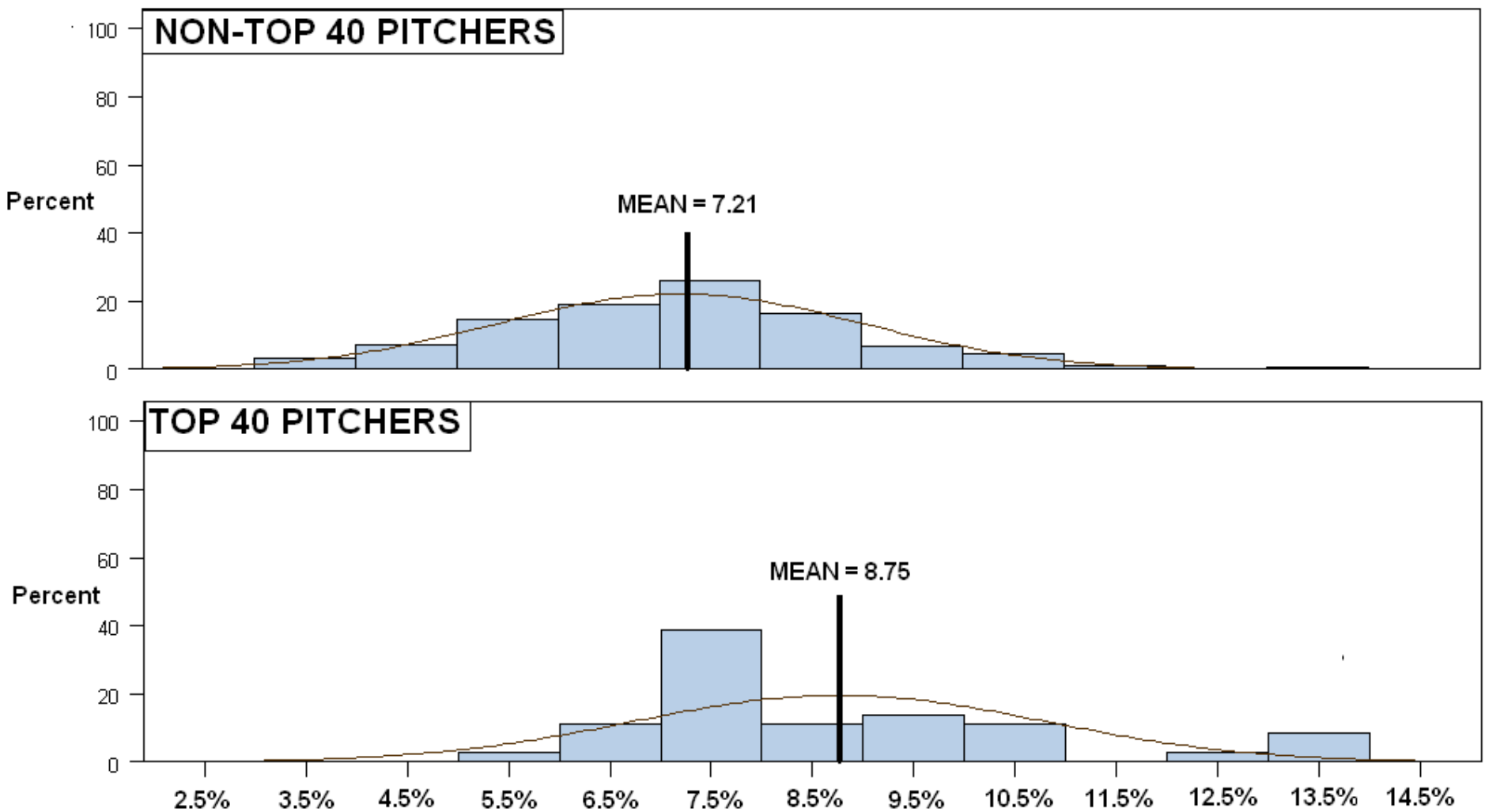
## Younger Top 40 Pitchers

Lincecum, Hamels,  
Wainwright,  
Carpenter, Jurrjens,  
Kershaw, Wilson,  
Johnson, Broxton,  
Moylan, Lester,  
Greinke, Hernandez,  
Papellbon, Verlander,  
Weaver, Jenks,  
Buchholz, Price, Feliz,  
Lewis

## Older Top 40 Pitchers

Santana, Sabathia,  
Peavy, Halladay,  
Oswalt, Hudson,  
Wagner, Hoffman,  
Rodriguez, Gonzales,  
Haren, Lee, Danks,  
Buehrle, Nathan,  
Rivera, Beckett,  
Soriano, Lackey

# MEAN FALSE STRIKE RATES



# Preference Toward the Best Pitchers

- ▶ Among Younger Pitchers (< 6.5 Yrs. Experience)
  - Top 40: 7.8% False Strike Rate
  - Others: 7.1% False Strike Rate
  
- ▶ Among Older Pitchers (> 6.5 Yrs. Experience)
  - Top 40: 9.3% False Strike Rate
  - Others: 7.9% False Strike Rate


# Preference Toward the Best Batters

Younger Top 40 Hitters	Older Top 40 Hitters
Mauer, Youkilis, Pedroia, Morneau, Hamilton, Teixeira, Longoria, Cabrera, Cano, Gonzales, Votto, Tulowitzki, Holliday, Fielder, Utley, Ramirez, Howard, Ethier, McCann, Bay	Rodriguez, Bradley, Suzuki, Ordonez, Huff, Young, Jeter, Crawford, Abreu, Konerko, Pujols, Jones, Dunn, Helton, Berkman, Ramirez, Varitek, Ibanez, Guerrero, Martinez

# Preference Toward the Best Batters

- ▶ Among Younger Batters (< 6.5 Yrs. Experience)
  - Top 40: 7.6% False Ball Rate
  - Others: 7.7% False Ball Rate
  
- ▶ Among Older Batters (> 6.5 Yrs. Experience)
  - Top 40: 7.2% False Ball Rate
  - Others: 7.8% False Ball Rate


# Miscellaneous Results

- ▶ 77 of 96 (80.2%) umpires had a higher false strike rate for older pitchers.
  - ▶ False strike rate on a 3–2 count:
    - For younger pitchers, 4.9%
    - For older pitchers, 6.6%
- 


# Miscellaneous Results

- ▶ 48 of 96 (50.0%) umpires had a higher false ball rate for older batters
  - Exactly what we would expect under a “no preferences” model
- ▶ False ball rate on a 3–2 count:
  - For younger batters, 8.2%
  - For older batters, 8.0%

# Conclusions

- ▶ Umpires absolutely favor veterans with respect to false strikes
  - ▶ Umpires most likely favor veteran pitchers with respect to false balls
    - No evidence of benefit to veteran hitters
  - ▶ “Good” pitchers see the most preferential benefit
  - ▶ No evidence of rookie hazing
- 

# PITCH F/X Limitations

- ▶ **Measurement error:**
    - Around 0.5 inches for location
    - Around 0.5 mph for speed
    - Around 2.0 inches for movement
  - ▶ **People responsible for certain inputs:**
    - Calibrating the camera system before a game
    - Determining the bottom and top of a strike zone
  - ▶ **Stadium variation**
- 

# A Team Effort

- ▶ Hillary Superak – PITCH F/X and graphical expert
  - ▶ Lisa Elon – team skeptic and graph designer
  - ▶ Paul Weiss – database creation
  - ▶ Mark Katz – literature search and bibliography
  - ▶ Jeff Switchenko – results and interpretation
  - ▶ Brian Schmotzer – idea generation, planning
  - ▶ Lance Waller – money man
- 