Velocity Breakdown by Pitch Type
Data available for home games only

Analysis Variable : velocity					
pitchType	N Obs	N	Minimum	Mean	Maximum
CB	3	3	72.0	76.3	79.0
CH	2	2	77.0	80.0	83.0
FB	34	34	81.0	87.7	92.0
SL	2	2	86.0	86.5	87.0

Velocity Breakdown by Pitch Type
visual of above table
Data available for home games only

Average Velocity by Game
Grouped by pitch type
Data available for home games only
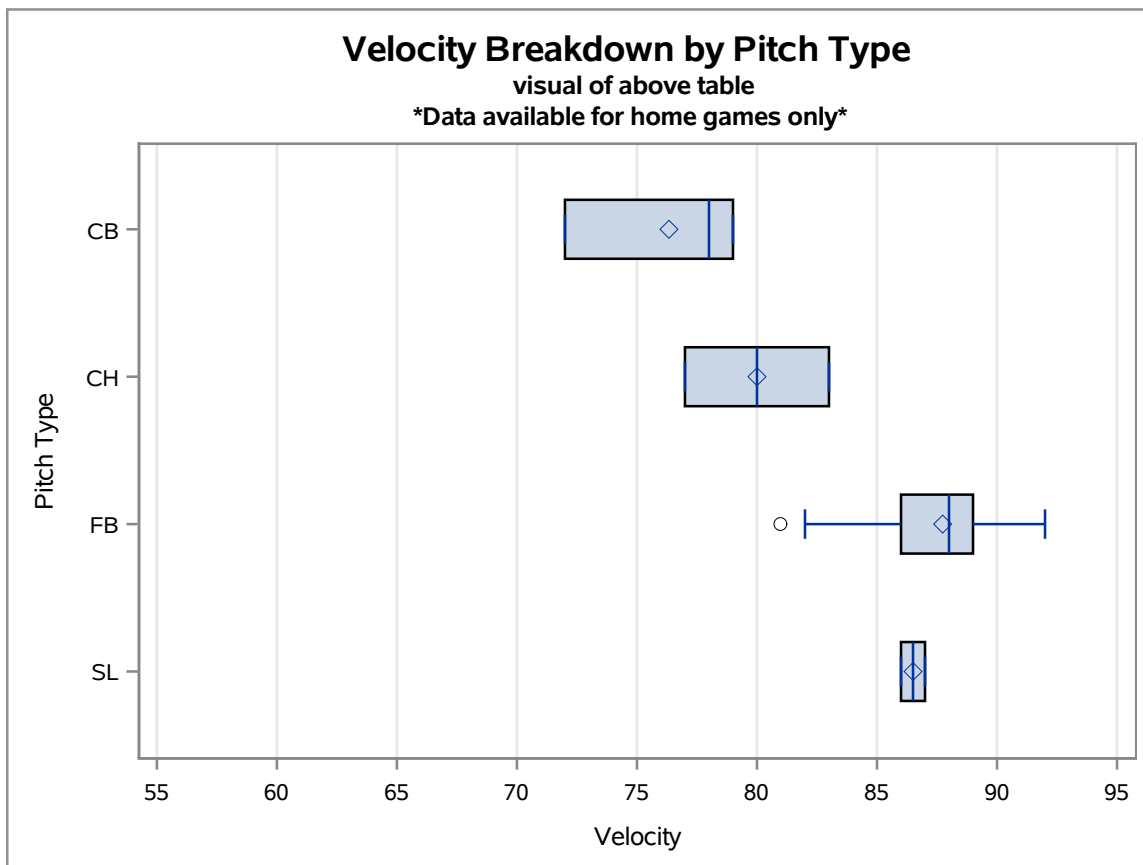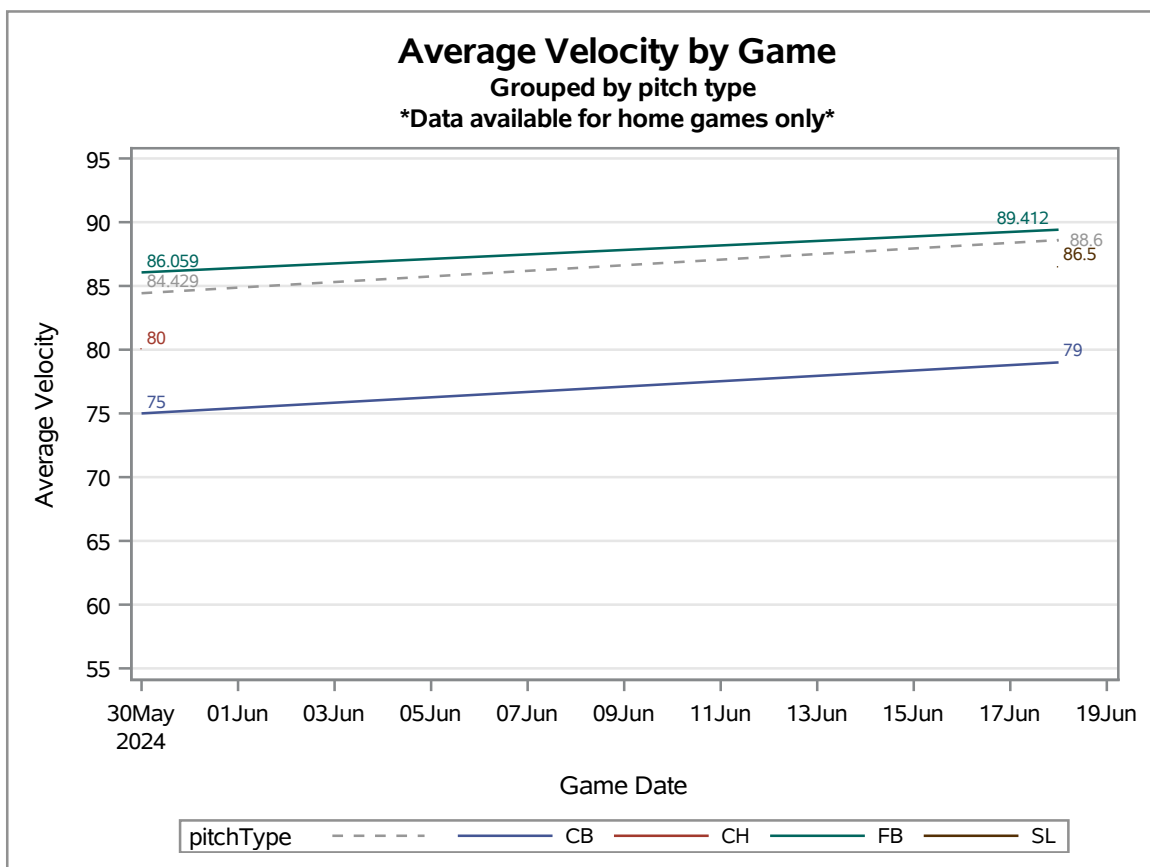
Dependent Variable: swingingStrRate

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	14	92.08420139	6.57744296	113.77	<.0001
Error	5	0.28906250	0.05781250		
Corrected Total	19	92.37326389			

R-Square	Coeff Var	Root MSE	swingingStrRate Mean
0.996871	31.19251	0.240442	0.770833

Source	DF	Type III SS	Mean Square	F Value	Pr > F
location	11	87.73016827	7.97546984	137.95	<.0001
pitchType	3	0.00781250	0.00260417	0.05	0.9858

Analysis of Swinging Strike Rate by Pitch Type and Location

Dependent Variable: swingingStrRate

Fit Diagnostics for swingingStrRate

Dependent Variable: swingingStrRate
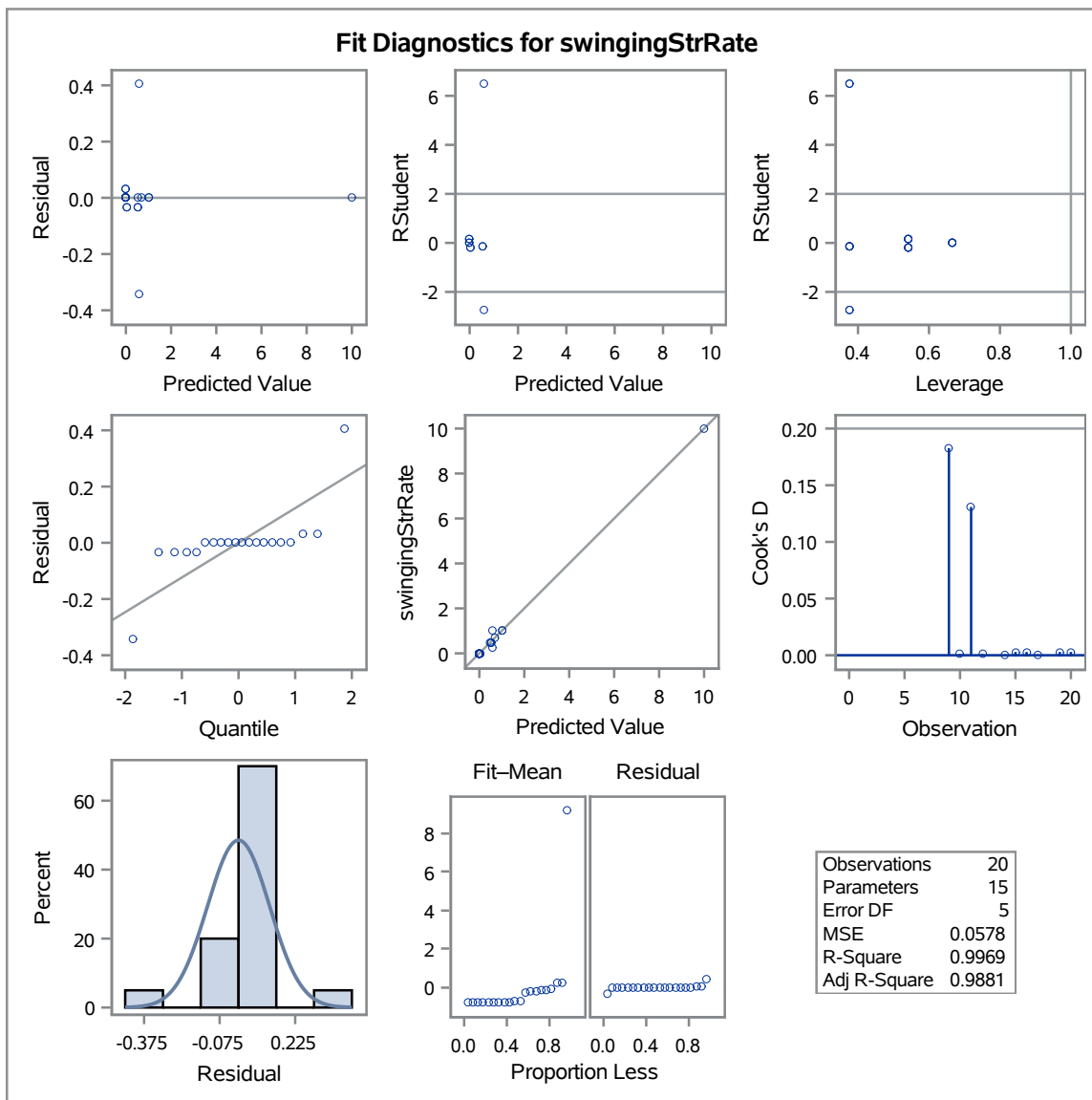
Interaction Plot for swingingStrRate
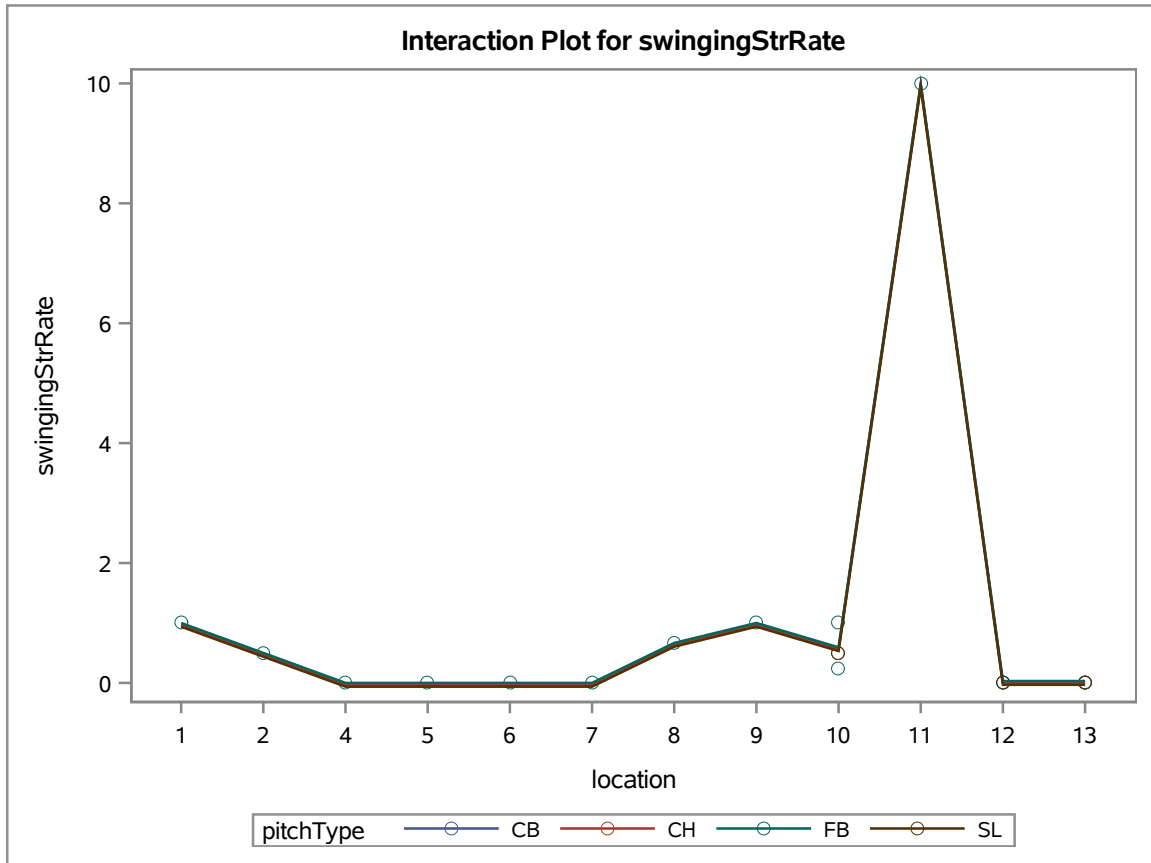
Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer

pitchType	swingingStrRate LSMEAN	LSMEAN Number
CB	1.12065972	1
CH	1.12065972	2
FB	1.15190972	3
SL	1.08940972	4

Least Squares Means for effect pitchType
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: swingingStrRate

i/j	1	2	3	4
1		1.0000	0.9989	0.9989
2	1.0000		0.9995	0.9995
3	0.9989	0.9995		0.9812
4	0.9989	0.9995	0.9812	

| pitchType	swingingStrRate LSMEAN	95% Confidence Limits	
CB	1.120660	0.565023	1.676296
CH	1.120660	0.370052	1.871267
FB	1.151910	0.978195	1.325625
SL	1.089410	0.672956	1.505864

Least Squares Means for Effect pitchType

i	j	Difference Between Means	Simultaneous 95% Confidence Limits for LSMean(i)-LSMean(j)	
1	2	0	-1.145355	1.145355
1	3	-0.031250	-0.861138	0.798638
1	4	0.031250	-0.798638	0.861138
2	3	-0.031250	-1.132817	1.070317

Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer

		Least Squares Means for Effect pitchType		
i	j	Difference Between Means	Simultaneous 95% Confidence Limits for LSMean(i)-LSMean(j)	
2	4	0.031250	-1.070317	1.132817
3	4	0.062500	-0.564837	0.689837

LS-Means for pitchType
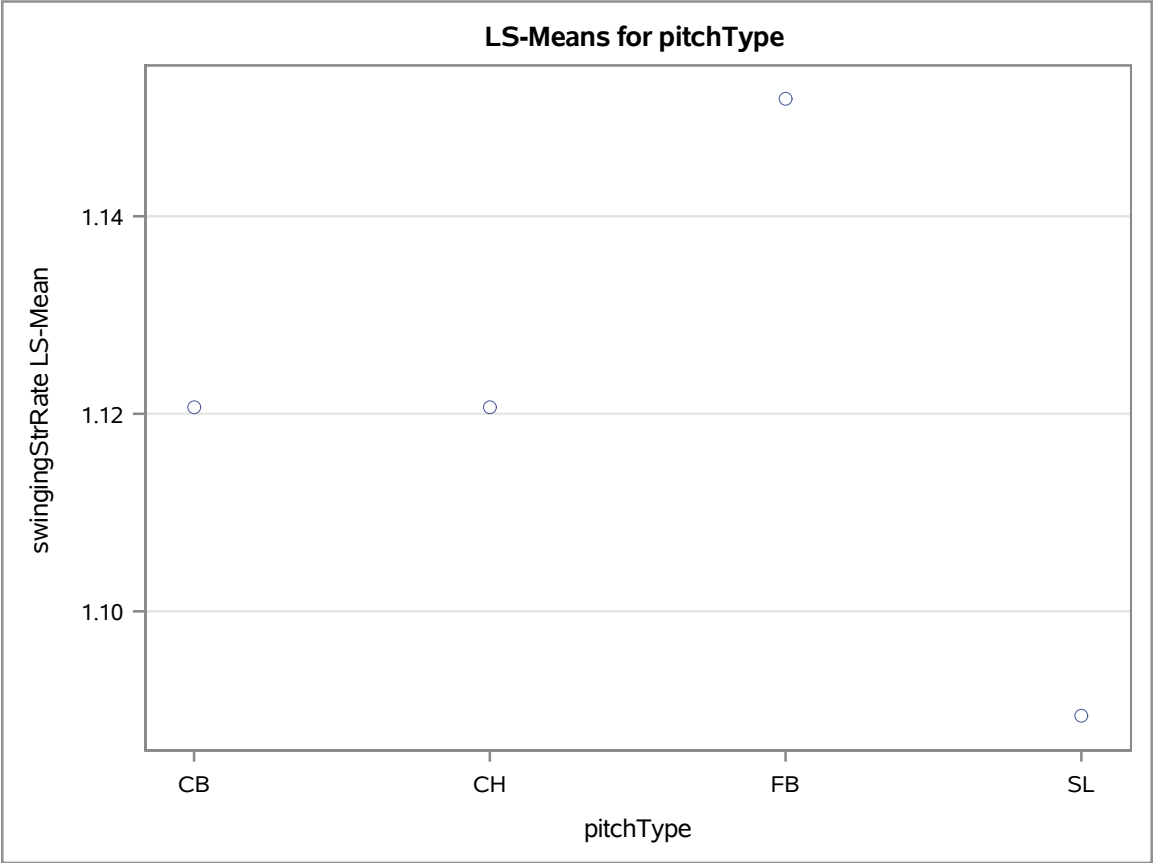
Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer

swingingStrRate Comparisons for pitchType
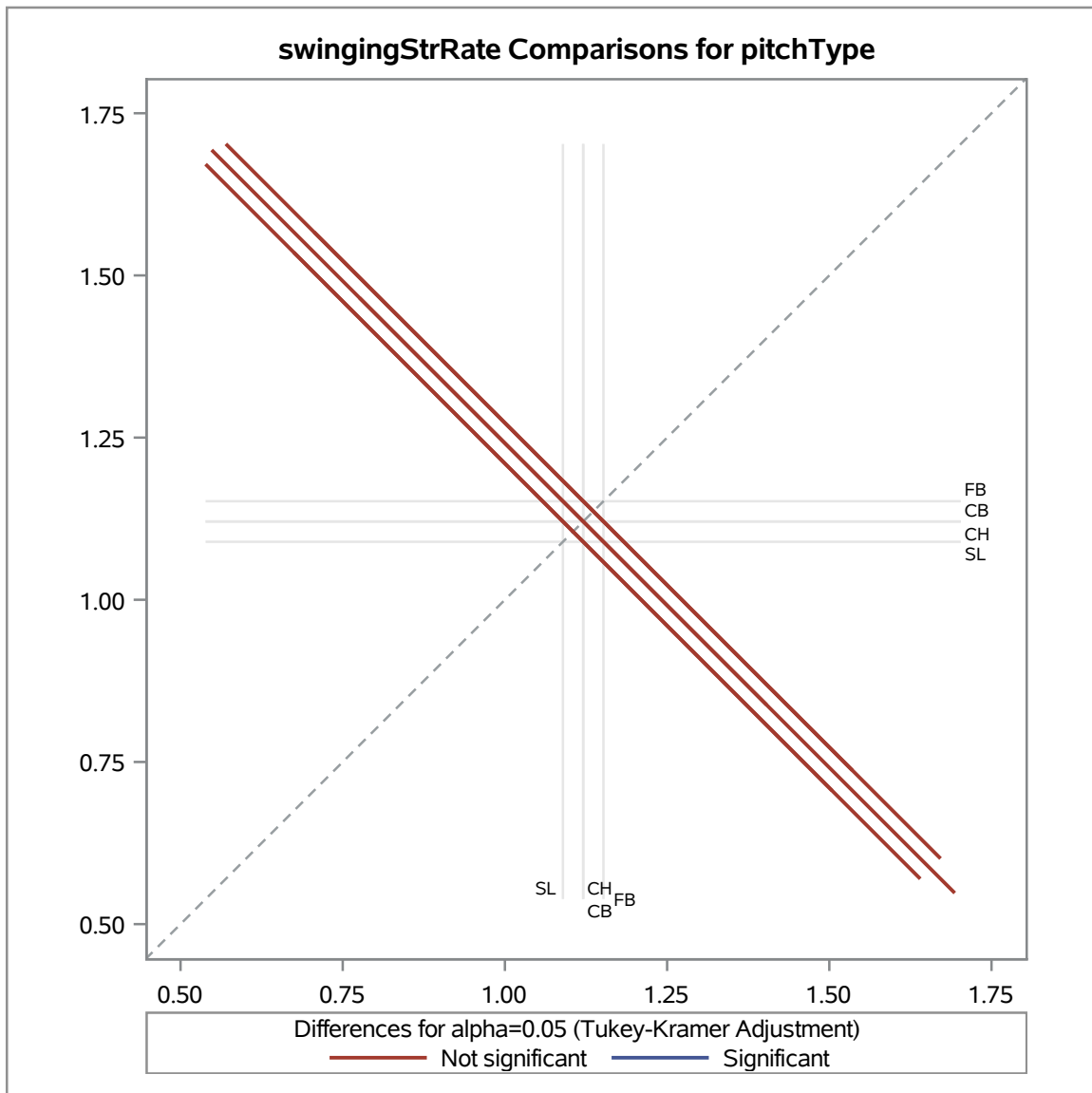
Swinging Strike Rate by Zone
Zones 1-9 are inside strikezone, 10-13 are outside of zone

Pitch Location	Total Pitches	Total Swings	Total Misses	Swinging Strike Rate
1	1	1	1	100.0%
2	2	2	1	50.00%
4	4	2	0	0.00%
5	4	3	0	0.00%
6	1	0	0	0.00%
7	3	1	0	0.00%
8	3	3	2	66.67%
9	1	1	1	100.0%
10	9	2	2	22.22%
11	1	1	10	1000%
12	8	0	0	0.00%
13	13	0	0	0.00%

Pitch Type	Total Pitches	Total Swings	Total Misses	Swinging Strike Rate
CB	3	0	0	0.00%
CH	3	0	0	0.00%
FB	40	15	16	40.00%
SL	4	1	1	25.00%

Regression Analysis of Velocity by Pitch Type
Data available for home games only

Dependent Variable: velocity

pitchType=CB

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	10.66666667	10.66666667	0.59	0.5823
Error	1	18.00000000	18.00000000		
Corrected Total	2	28.66666667			

R-Square	Coeff Var	Root MSE	velocity Mean
0.372093	5.558045	4.242641	76.33333

Source	DF	Type I SS	Mean Square	F Value	Pr > F
date	1	10.66666667	10.66666667	0.59	0.5823

Source	DF	Type III SS	Mean Square	F Value	Pr > F
date	1	10.66666667	10.66666667	0.59	0.5823

Distribution of velocity
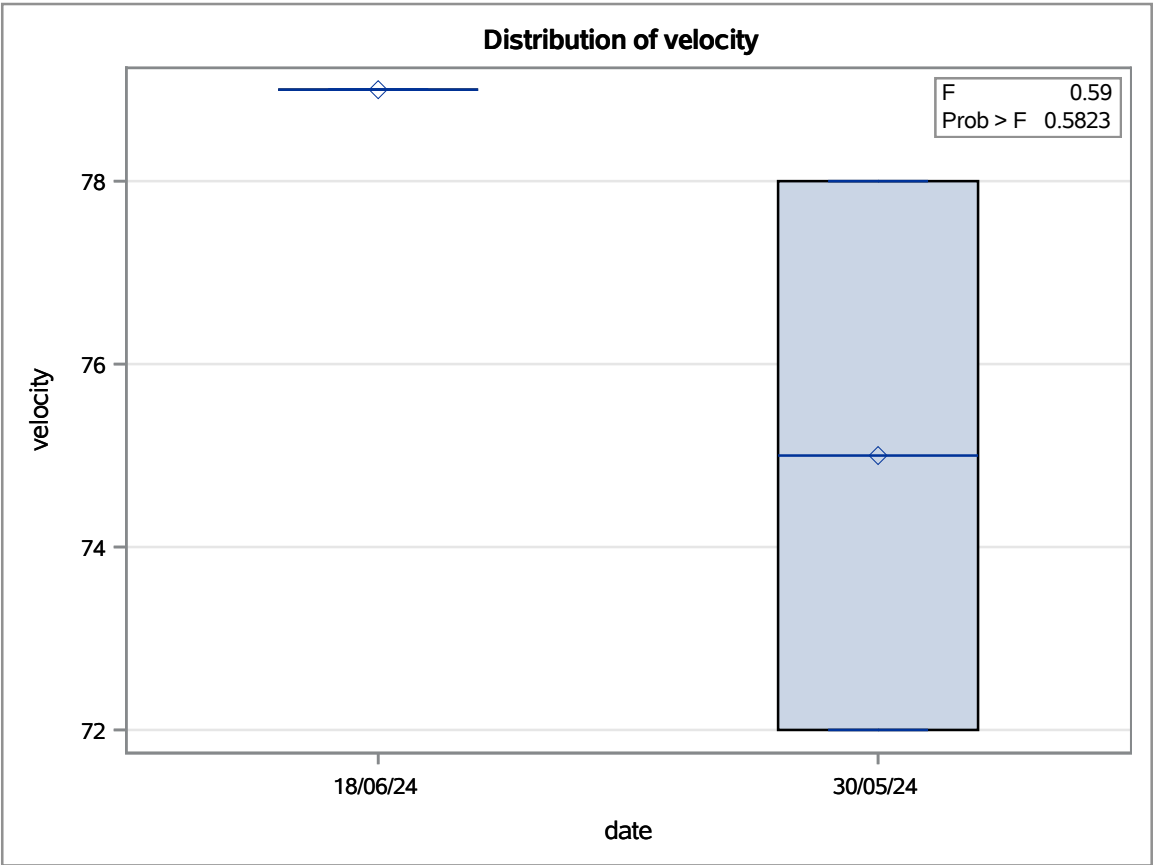
Data available for home games only

Dependent Variable: velocity

pitchType=CH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	0	0.00000000	.	.	.
Error	1	18.00000000	18.00000000		
Corrected Total	1	18.00000000			

R-Square	Coeff Var	Root MSE	velocity Mean
0.000000	5.303301	4.242641	80.00000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
date	0	0	.	.	.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
date	0	0	.	.	.

Distribution of velocity
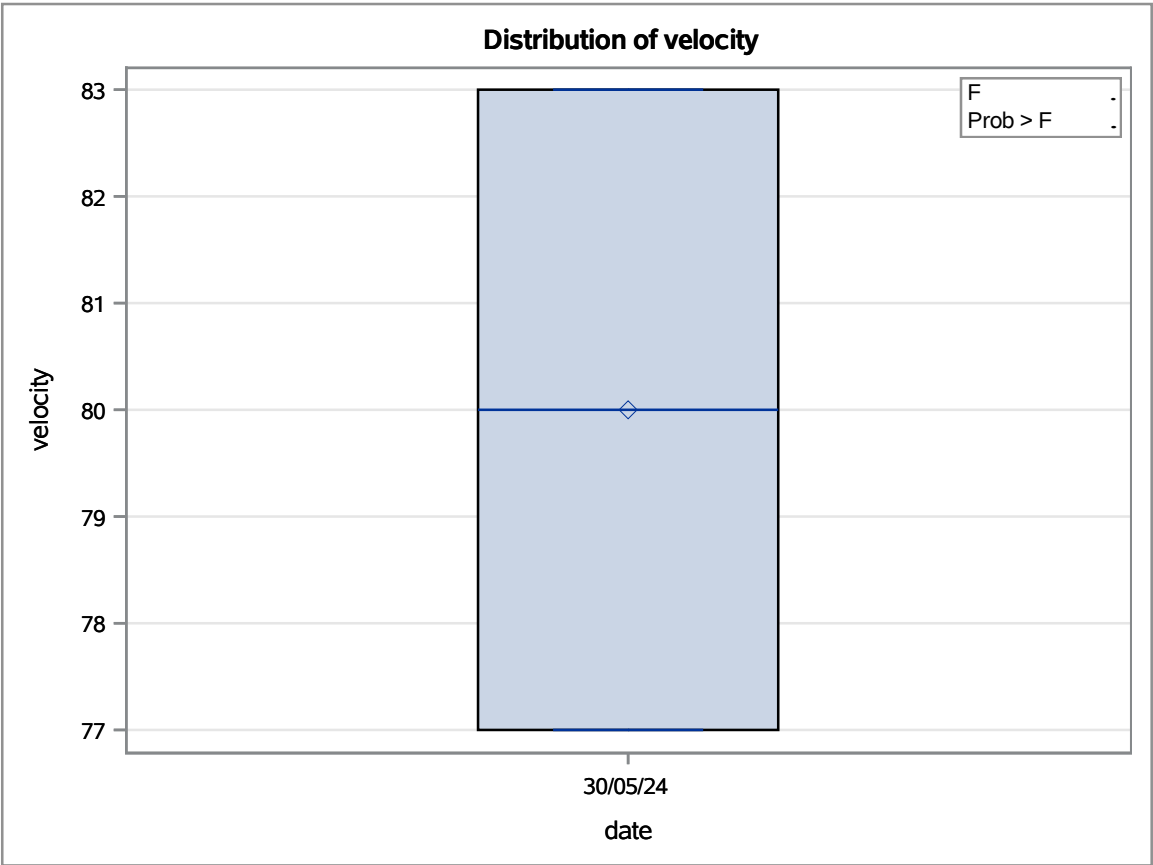
Regression Analysis of Velocity by Pitch Type
Data available for home games only

Dependent Variable: velocity

pitchType=FB

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	95.5588235	95.5588235	28.04	<.0001
Error	32	109.0588235	3.4080882		
Corrected Total	33	204.6176471			

R-Square	Coeff Var	Root MSE	velocity Mean
0.467012	2.104171	1.846101	87.73529

Source	DF	Type I SS	Mean Square	F Value	Pr > F
date	1	95.55882353	95.55882353	28.04	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
date	1	95.55882353	95.55882353	28.04	<.0001

Distribution of velocity

Regression Analysis of Velocity by Pitch Type
Data available for home games only
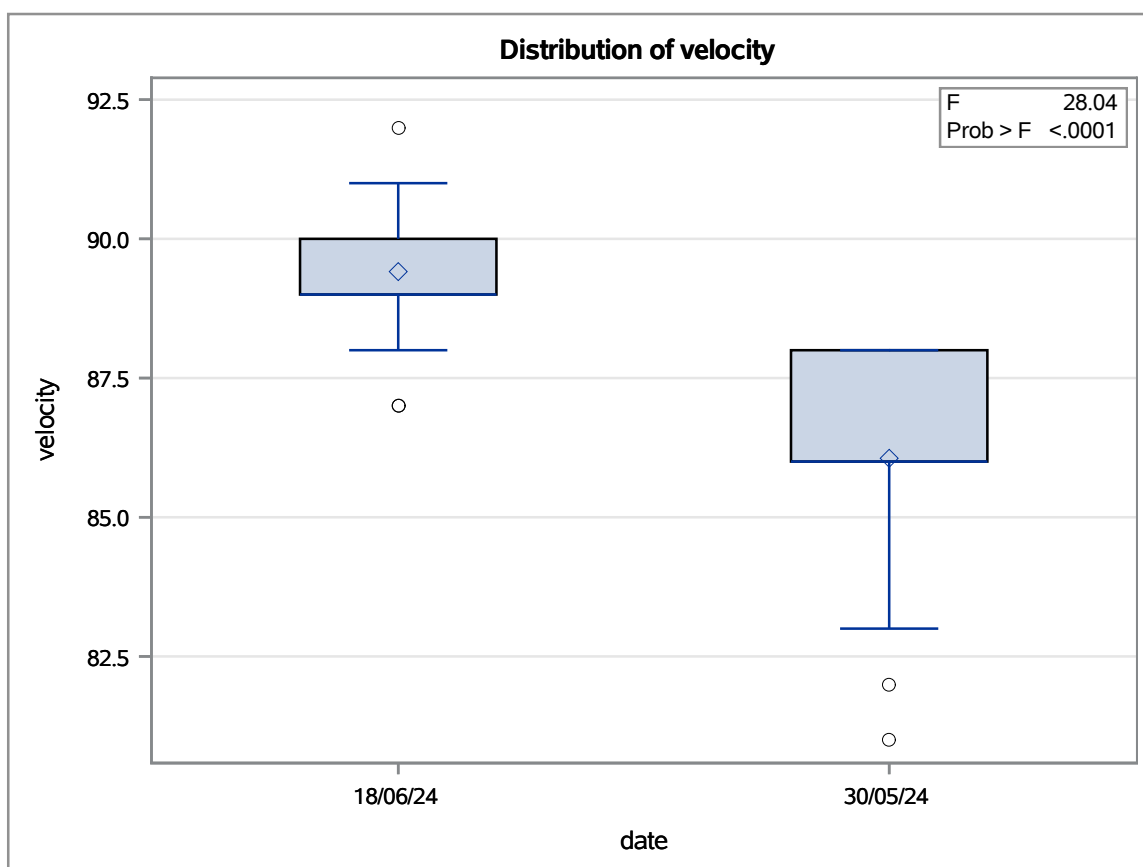
Dependent Variable: velocity

pitchType=SL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	0	0.00000000	.	.	.
Error	1	0.50000000	0.50000000		
Corrected Total	1	0.50000000			

R-Square	Coeff Var	Root MSE	velocity Mean
0.000000	0.817464	0.707107	86.50000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
date	0	0	.	.	.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
date	0	0	.	.	.

Distribution of velocity