

**RECONSIDERING THE LINEUP:**  

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*OPTIMAL QUANTITY OF  
DEFENSEMEN*

***ERIC CANTOR***

# INTRODUCTION



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SCORES

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Unorthodox lineup paying dividends for Lightning

## Unorthodox lineup paying dividends for Lightning

by Arpon Basu / NHL.com

🕒 June 9th, 2015

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# BACKGROUND

## WHAT

- Identify if performance differences exist with a roster structured with 7 defensemen rather than the traditional 6

## HOW

- Analyze Tampa Bay Lightning game data from 2013-2016

## WHY

- Determine if a measurable advantage is obtained when implementing a roster structure with 7 defensemen

# OUTLINE

- 293 total games (2013-16)
- 92 (7D) & 201 (6D)

## AREAS OF FOCUS:

- Relation to Injuries
- TOI distribution
- Team stats
- Defensemen stats
- Top 6 Forward stats
- Zone Entries
- Passing Project stats

## 7D GAMES DISTRIBUTION

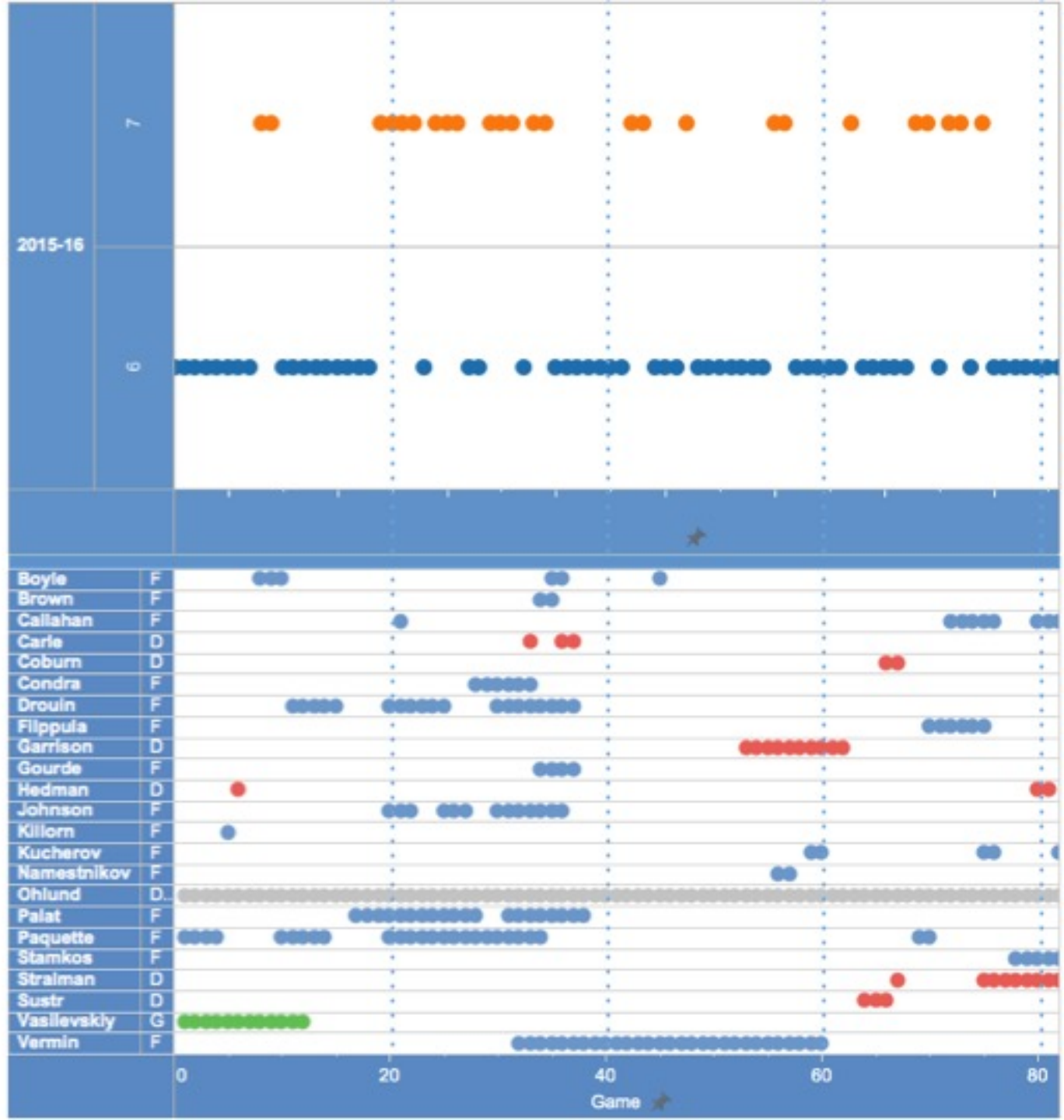
<u>SEASON</u>	<u>REGULAR (7D)</u>	<u>PLAYOFFS (7D)</u>	<u>TOTAL (7D)</u>
<i>13-14</i>	82 (41)	4 (2)	86 (43)
<i>14-15</i>	82 (0)	26 (14)	108 (14)
<i>15-16</i>	82 (25)	17 (10)	99 (35)
<i>TOTALS</i>	246 (66)	47 (26)	293 (92)

# 7D GAMES DISTRIBUTION



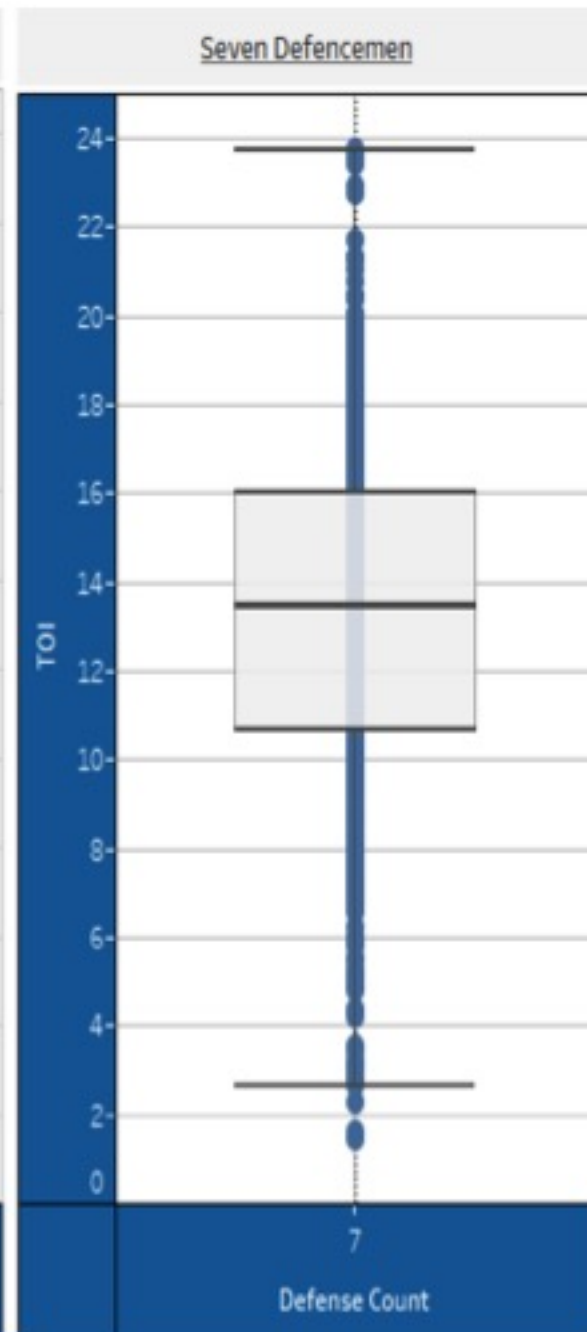
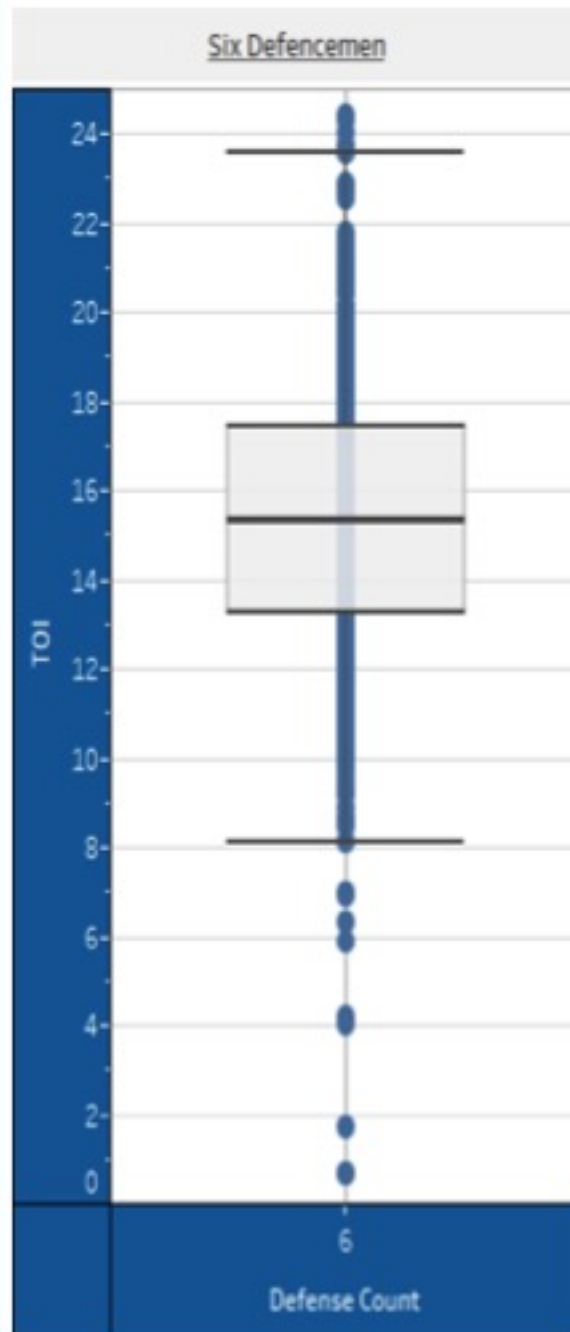


# INJURIES (2015-16)



# DEFENSE TOI

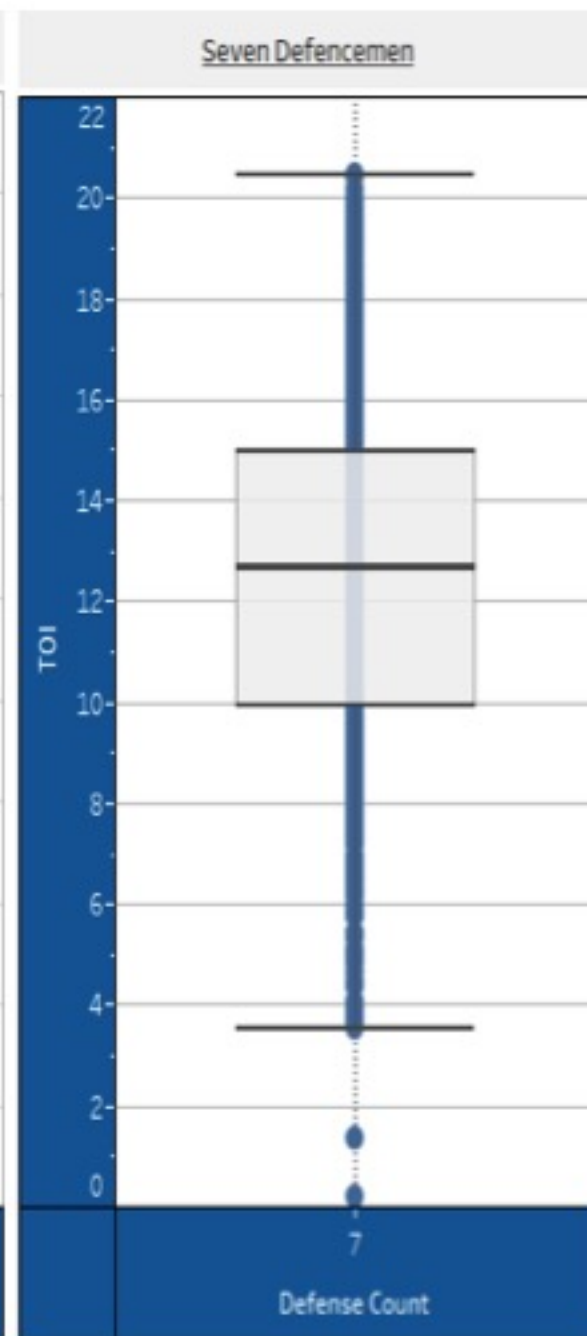
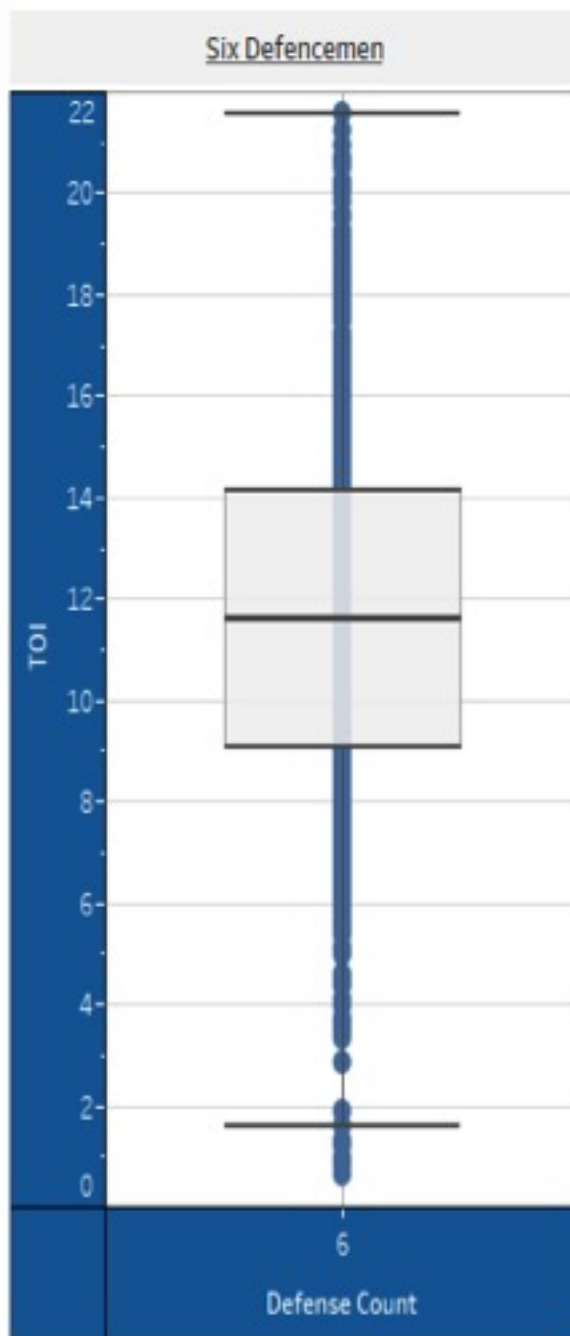
STATISTIC	6D	7D
<i>Upper Whisker</i>	23.60	23.73
<i>Upper Hinge</i>	17.42	16.05
<i>Median</i>	15.35	13.50
<i>Lower Hinge</i>	13.25	10.66
<i>Lower Whisker</i>	8.11	2.65





# TOP SIX FORWARDS TOI

STATISTIC	6D	7D
<i>Upper Whisker</i>	21.55	20.94
<i>Upper Hinge</i>	14.16	14.96
<i>Median</i>	11.64	12.72
<i>Lower Hinge</i>	9.07	9.55
<i>Lower Whisker</i>	1.57	3.56



# OVERALL TEAM STATISTICS

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>CHANGE</u>
<i>CF60</i>	56.04	60.07	+4.03
<i>CA60</i>	53.25	54.79	+1.53
<i>CF%</i>	51.28%	52.31%	+1.03
<i>FF60</i>	41.50	44.92	+3.42
<i>FA60</i>	40.28	40.99	+0.71
<i>FF%</i>	50.88%	52.30%	+1.42
<i>SCF60</i>	7.37	8.01	+0.64
<i>SCA60</i>	7.21	7.65	+0.44
<i>SCF%</i>	51.01%	51.12%	+0.11
<i>xGF60</i>	2.32	2.54	+0.22
<i>xGA60</i>	2.24	2.36	+0.13

# OVERALL TEAM STATISTICS

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>P-VALUE</u>
<i>CF60</i>	56.04	60.07	0.001954
<i>CA60</i>	53.25	54.79	0.1331
<i>CF%</i>	51.28%	52.31%	0.1415
<i>FF60</i>	41.50	44.92	0.000942
<i>FA60</i>	40.28	40.99	0.2616
<i>FF%</i>	50.88%	52.30%	0.07876
<i>SCF60</i>	7.37	8.01	0.1296
<i>SCA60</i>	7.21	7.65	0.2228
<i>SCF%</i>	51.01%	51.12%	0.4798
<i>xGF60</i>	2.32	2.54	0.01687
<i>xGA60</i>	2.24	2.36	0.1152

# TOP SIX FORWARDS

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>CHANGE</u>
<i>CF%</i>	50.92%	52.73%	+1.81
<i>FF%</i>	50.42%	52.65%	+2.22
<i>xGF</i>	0.53	0.63	+0.10
<i>xGA</i>	0.53	0.59	+0.06
<i>xGF60</i>	2.35	2.60	+0.25
<i>xGA60</i>	2.35	2.40	+0.05

# DEFENSE

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>CHANGE</u>
<i>CF%</i>	51.09%	52.17%	+1.08
<i>FF%</i>	50.58%	52.04%	+1.46
<i>xGF</i>	0.59	0.55	-0.04
<i>xGA</i>	0.58	0.52	-0.05
<i>xGF60</i>	2.31	2.51	+0.20
<i>xGA60</i>	2.26	2.40	+0.14

# TOP SIX FORWARDS

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>P-VALUE</u>
<i>CF%</i>	50.92%	52.73%	0.04154
<i>FF%</i>	50.42%	52.65%	0.02437
<i>xGF</i>	0.53	0.63	0.000038
<i>xGA</i>	0.53	0.59	0.01839
<i>xGF60</i>	2.35	2.60	0.01489
<i>xGA60</i>	2.35	2.40	0.3391

# DEFENSE

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>P-VALUE</u>
<i>CF%</i>	51.09%	52.17%	0.1318
<i>FF%</i>	50.58%	52.04%	0.07444
<i>xGF</i>	0.59	0.55	0.9449
<i>xGA</i>	0.58	0.52	0.982
<i>xGF60</i>	2.31	2.51	0.02488
<i>xGA60</i>	2.26	2.40	0.09575

# ZONE ENTRIES (2013-14)

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>CHANGE</u>
<i>5V5 Entry%</i>	50.65%	50.89%	+0.24
<i>Carry-in%</i>	49.61%	57.02%	+7.41
<i>Shots per entry</i>	0.44	0.50	+0.06
<i>OPP Carry-in%</i>	47.07%	47.15%	+0.07
<i>OPP Shots per entry</i>	0.46	0.47	+0.01

# PASSING (2015-16)

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>CHANGE</u>
<i>A1</i>	42.67	44.41	+1.75
<i>SC</i>	15.41	16.71	+1.30

\*Passing data limited to 56 games from 2015-16 season

# ZONE ENTRIES (2013-14)

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>P-VALUE</u>
<i>5V5 Entry%</i>	50.65%	50.89%	0.4133
<i>Carry-in%</i>	49.61%	57.02%	0.00001426
<i>Shots per entry</i>	0.44	0.50	0.00275
<i>OPP Carry-in%</i>	47.07%	47.15%	0.4839
<i>OPP Shots per entry</i>	0.46	0.47	0.3423

# PASSING (2015-16)

<u>STATISTIC</u>	<u>6D</u>	<u>7D</u>	<u>P-VALUE</u>
<i>A1</i>	42.67	44.41	0.2606
<i>SC</i>	15.41	16.71	0.167

\*Passing data limited to 56 games from 2015-16 season

# FUTURE EXPLORATION

- Ideas for future exploration include:
  - The factor of fatigue
  - Additional injury analysis
  - Individual player analysis
  - Further zone entry and exit analysis
  - Other forms of tracking data
  - Informative models
  - Predictive models



# CONCLUSION

- The potential competitive advantage of the 7D roster structure should hold much intrigue and appeal for hockey management of all levels
- Many potential applications and complements exist for the 7D strategy
  - Current trend of more mobile defensemen
  - Injury situations
  - Much more...

# ACKNOWLEDGEMENTS & INFO

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## ACKNOWLEDGEMENTS:

- Conference Organizers and Babson College
- Doug Ensley
- Michael Peterson
- Michael Schuckers
- Many more....

## DATA SOURCES:

- Corsica.Hockey
- Corey Sznajder's All Three Zone Project
- Ryan Stimson's Passing Project
- NHL Injury Dataviz