

# *Establishing the Base Race Strategy: Female Long Course 100-Meter Events*

Select Competitions from 1996 - 2012

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July 2013

# Agenda

- I. Introduction
- II. Analysis of the 100M Freestyle
- III. Analysis of the 100M Backstroke
- IV. Analysis of the 100M Breaststroke
- V. Analysis of the 100M Butterfly
- VI. Conclusion – Establishing the Baseline

# Introduction

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Section I

# Executive Summary

## The Subject

- An analysis of the top five female finishers in each of the 100-stroke A-Finals from a selection of international competitions over the past two decades

## The Objective

- To determine the most commonly used race strategy amongst the worlds best swimmers as a baseline for developing more detailed training plans

## The Approach

- Separate and analyze each lap of the 100 for every race over the years to develop an average split delta, in percentage terms, for the second 50 when baselining from the first 50 of the race

## The Advantage

- Using my results, I developed a list of recommended splits for a range of times in order to give elite level swimmers a factual approach to specific goal times
- Using percentages as a measurement, rather than absolute times, does not disfavor any swimmers

# Criteria Used

## Sex:

- Female

## Session

- A-Final

## Distance

- 100 Meters

## Place:

- 1<sup>st</sup> – 5<sup>th</sup>

## Stroke

- Freestyle
- Backstroke
- Breaststroke
- Butterfly

## Meets

- Olympics:
  - 96, 00, 04, 08, 12
- World Championships:
  - 01, 03, 05, 07, 09, 11

Note: In some scenarios a swimmer placing out of the top five may be included for comparison purposes.

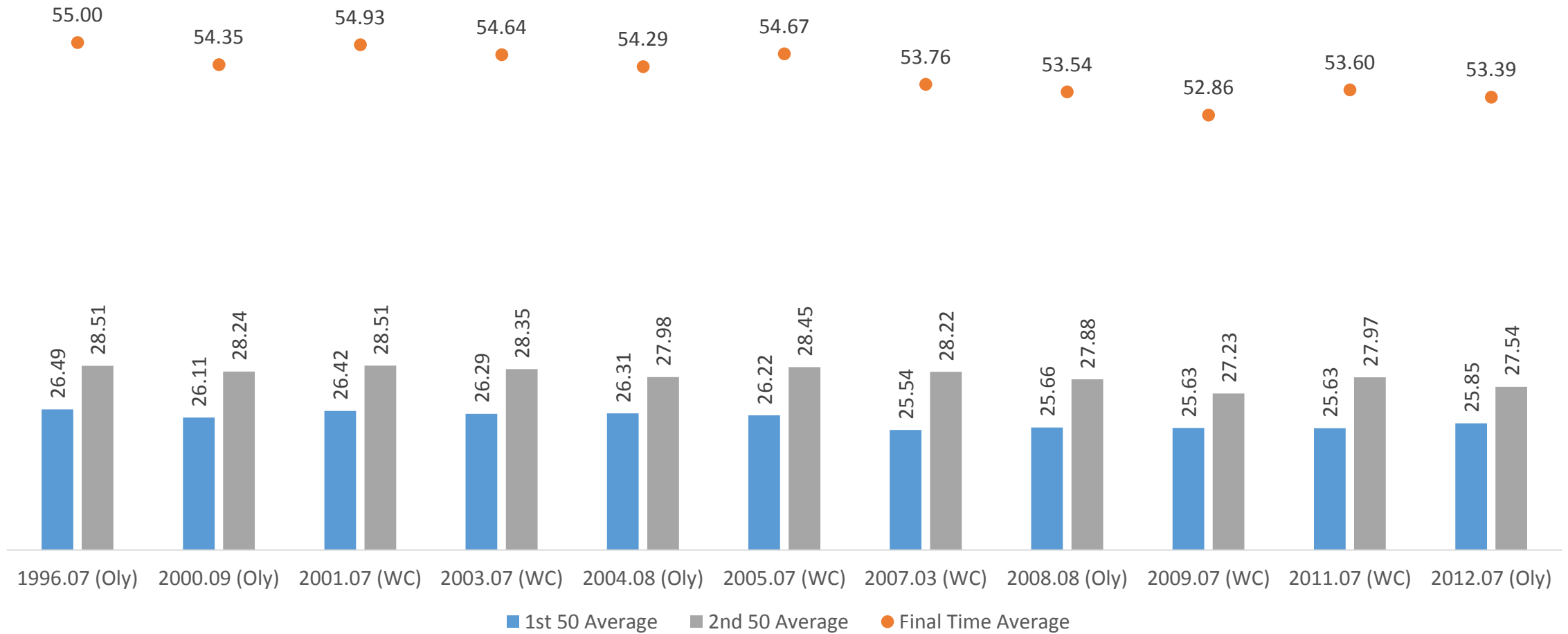
Source: International Olympic Committee, SwimRankings, Omega Timing.

# Analysis of the 100M Freestyle

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## Section II

# LCM Female 100 Freestyle: Race Averages

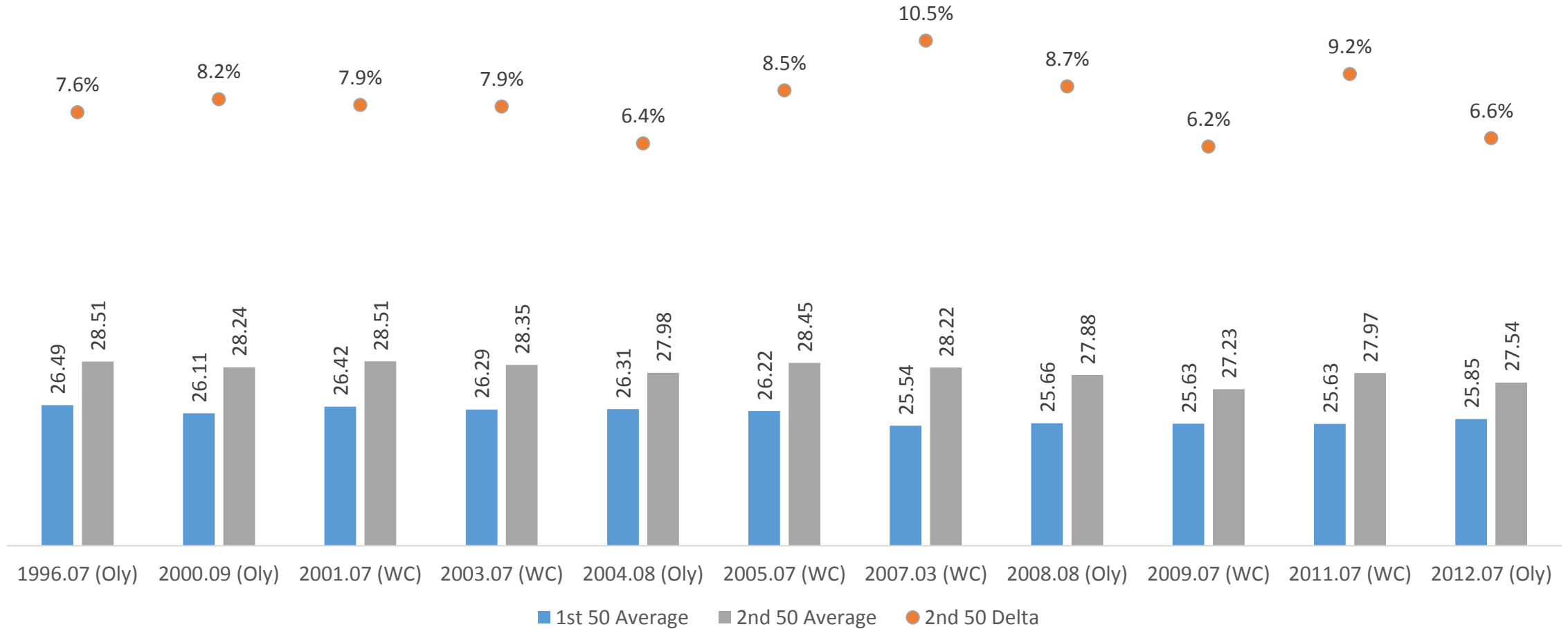


# LCM Female 100 Freestyle: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50 = 26.01

Average 2<sup>nd</sup> 50 = 28.08

Average Split Delta = 8.0%



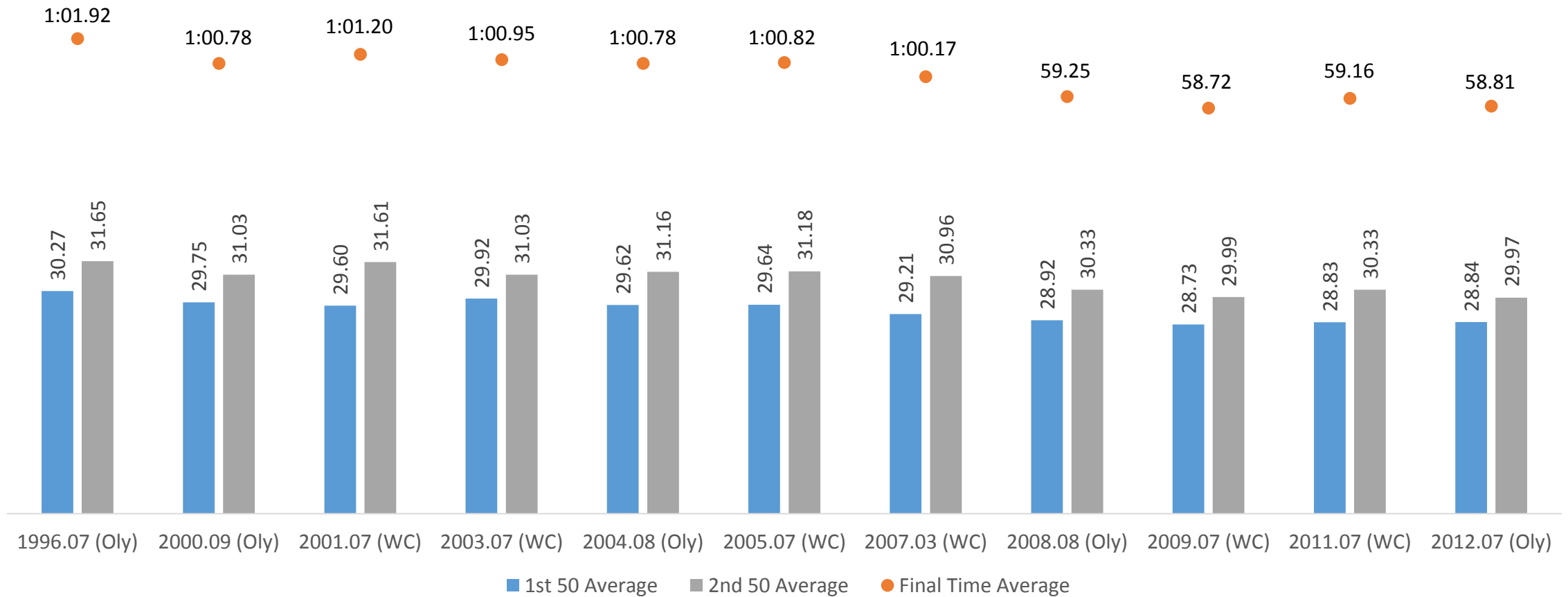


# Analysis of the 100M Backstroke

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Section III

# LCM Female 100 Backstroke: Race Averages

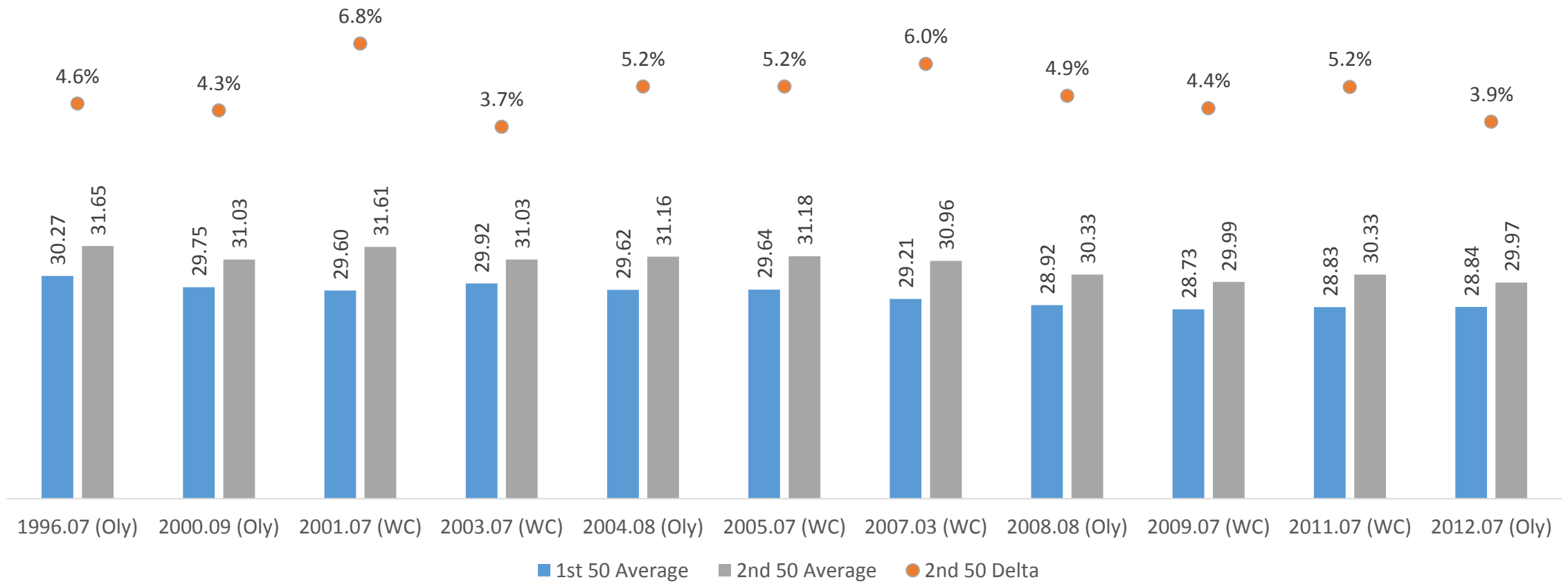


# LCM Female 100 Backstroke: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50 = 29.39

Average 2<sup>nd</sup> 50 = 30.84

Average Split Delta = 4.9%

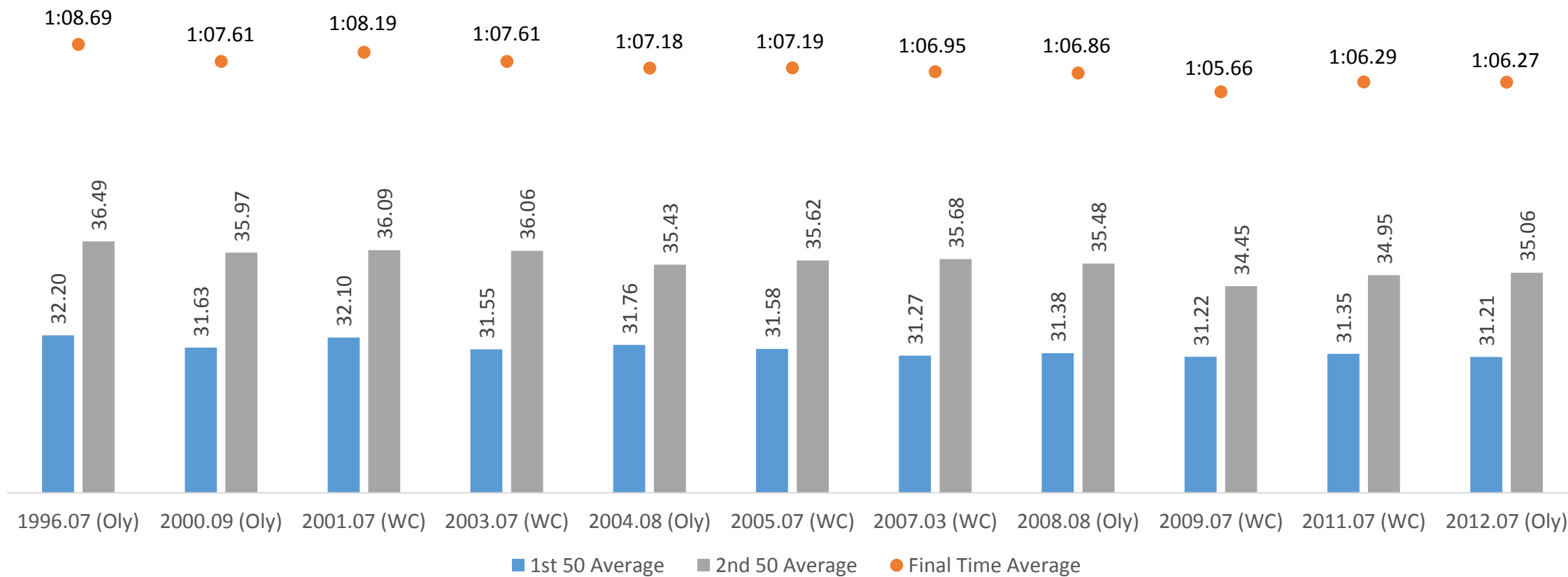


# Analysis of the 100M Breastroke

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## Section IV

# LCM Female 100 Breaststroke: Race Averages

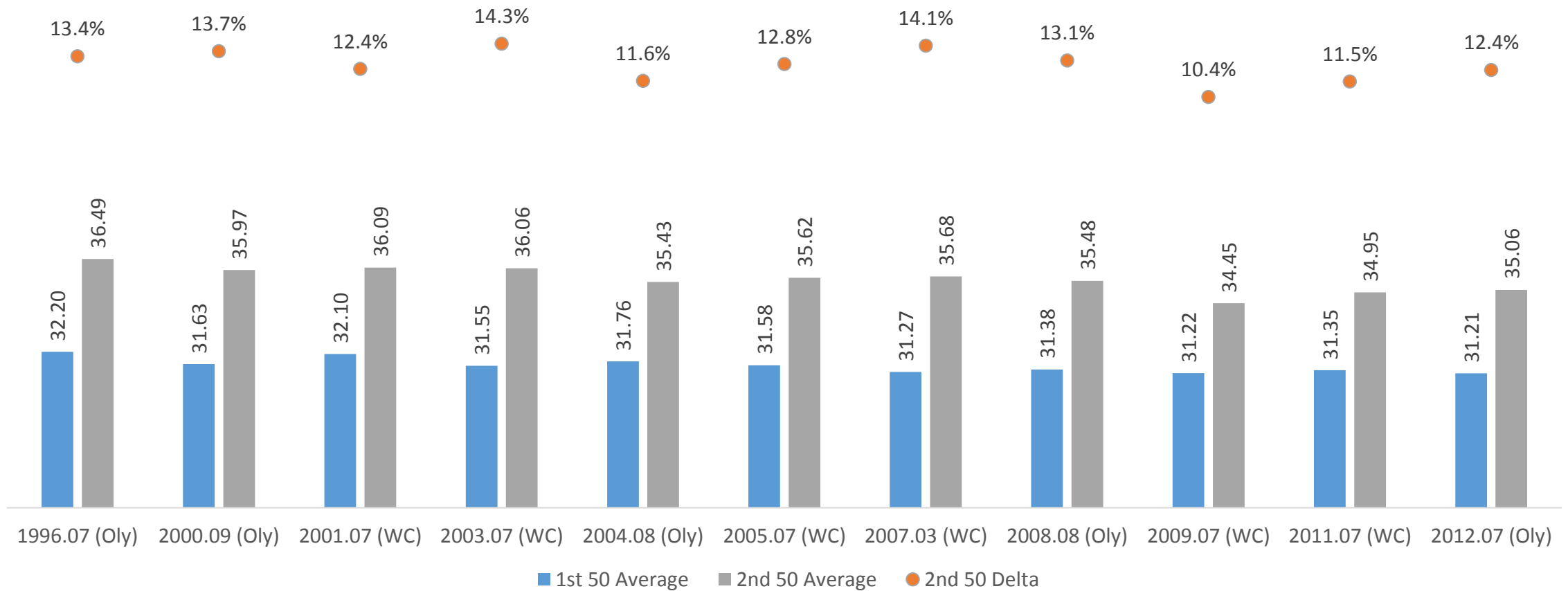


# LCM Female 100 Breaststroke: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50 = 31.57

Average 2<sup>nd</sup> 50 = 35.57

Average Split Delta = 12.7%

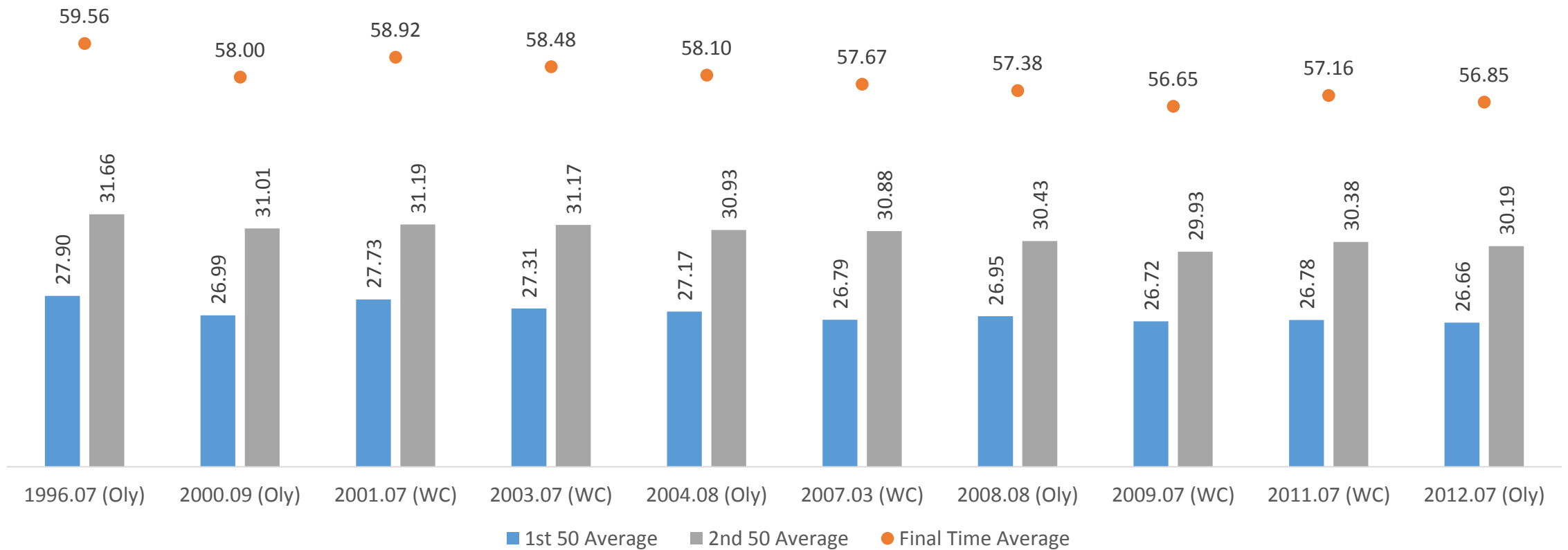


# Analysis of the 100M Butterfly

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Section V

# LCM Female 100 Butterfly: Race Averages



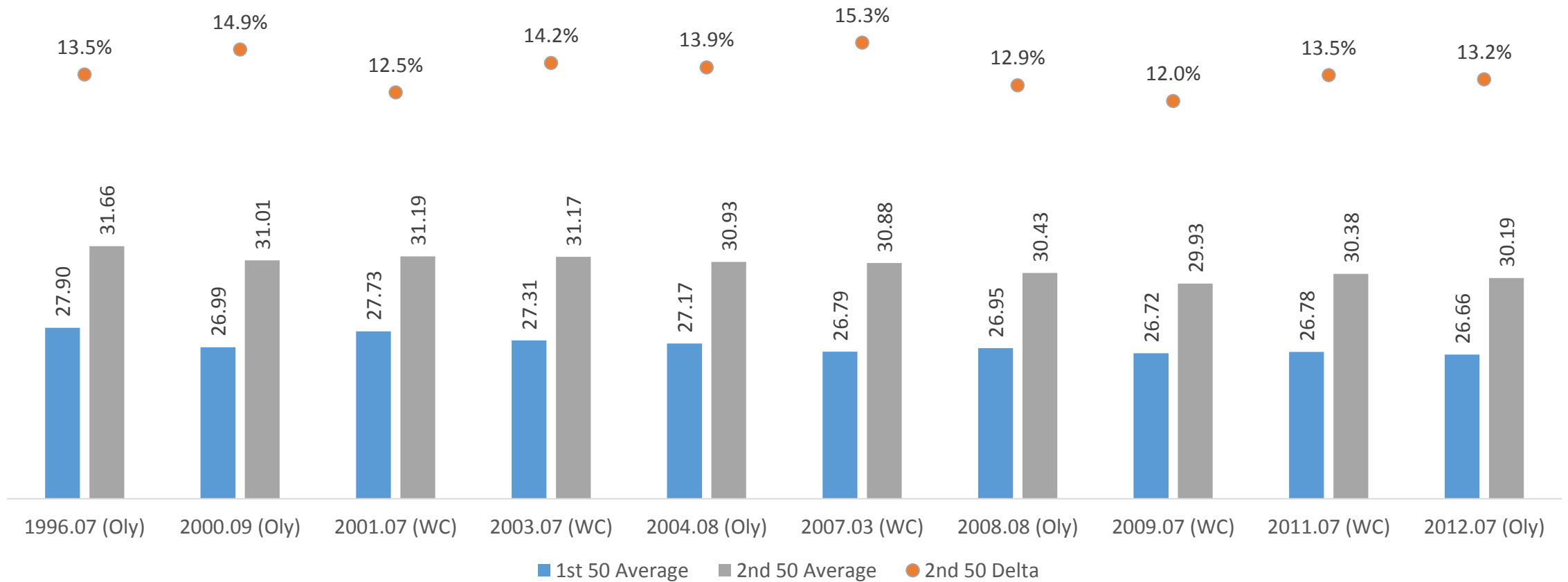


# LCM Female 100 Butterfly: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50 = 27.09

Average 2<sup>nd</sup> 50 = 30.76

Average Split Delta = 13.6%



# Establishing the Baseline

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## Section VI

# LCM Female 100M Freestyle: Baseline

- Using the average first 50 (26.01) as a baseline to the average split delta's, results in the following list of race strategies for a selection of times
- Split Delta's
  - 1<sup>st</sup> → 2<sup>nd</sup> 50 = 8.0%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd	
50.43	24.25	26.18	1.93
50.95	24.50	26.45	1.95
51.47	24.75	26.72	1.97
51.99	25.00	26.99	1.99
52.51	25.25	27.26	2.01
53.03	25.50	27.53	2.03
53.55	25.75	27.80	2.05
54.10	26.01	28.09	2.07
54.59	26.25	28.34	2.09
55.11	26.50	28.61	2.11
55.63	26.75	28.88	2.13
56.15	27.00	29.15	2.15
56.67	27.25	29.42	2.17
57.19	27.50	29.69	2.19
57.71	27.75	29.96	2.21
58.23	28.00	30.23	2.23
58.75	28.25	30.50	2.25

# LCM Female 100M Backstroke: Baseline

- Using the average first 50 (29.39) as a baseline to the average split delta's, results in the following list of race strategies for a selection of times
- Split Delta's
  - 1<sup>st</sup> → 2<sup>nd</sup> 50 = 4.9%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd	
56.87	27.75	29.12	1.37
57.38	28.00	29.38	1.38
57.89	28.25	29.64	1.39
58.41	28.50	29.91	1.41
58.92	28.75	30.17	1.42
59.43	29.00	30.43	1.43
59.94	29.25	30.69	1.44
1:00.24	29.39	30.84	1.45
1:00.46	29.50	30.96	1.46
1:00.97	29.75	31.22	1.47
1:01.48	30.00	31.48	1.48
1:01.99	30.25	31.74	1.49
1:02.51	30.50	32.01	1.51
1:03.02	30.75	32.27	1.52
1:03.53	31.00	32.53	1.53
1:04.04	31.25	32.79	1.54
1:04.55	31.50	33.05	1.55

# LCM Female 100M Breaststroke: Baseline

- Using the average first 50 (31.57) as a baseline to the average split delta's, results in the following list of race strategies for a selection of times
- Split Delta's
  - 1<sup>st</sup> → 2<sup>nd</sup> 50 = 12.7%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd	
1:03.27	29.75	33.52	3.77
1:03.81	30.00	33.81	3.81
1:04.34	30.25	34.09	3.84
1:04.87	30.50	34.37	3.87
1:05.40	30.75	34.65	3.90
1:05.93	31.00	34.93	3.93
1:06.47	31.25	35.22	3.97
1:07.14	31.57	35.57	4.01
1:07.53	31.75	35.78	4.03
1:08.09	32.00	36.06	4.06
1:08.59	32.25	36.34	4.09
1:09.12	32.50	36.62	4.12
1:09.66	32.75	36.91	4.16
1:10.19	33.00	37.19	4.19
1:10.72	33.25	37.47	4.22
1:11.25	33.50	37.75	4.25
1:11.78	33.75	38.03	4.28

# LCM Female 100M Butterfly: Baseline

- Using the average first 50 (27.09) as a baseline to the average split delta's, results in the following list of race strategies for a selection of times
- Split Delta's
  - 1<sup>st</sup> → 2<sup>nd</sup> 50 = 13.6%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd	
54.46	25.50	28.96	3.46
54.99	25.75	29.24	3.49
55.53	26.00	29.53	3.53
56.06	26.25	29.81	3.56
56.59	26.50	30.09	3.59
57.13	26.75	30.38	3.63
57.66	27.00	30.66	3.66
57.86	27.09	30.77	3.68
58.20	27.25	30.95	3.70
58.73	27.50	31.23	3.73
59.26	27.75	31.51	3.76
59.80	28.00	31.80	3.80
1:00.33	28.25	32.08	3.83
1:00.87	28.50	32.37	3.87
1:01.40	28.75	32.65	3.90
1:01.93	29.00	32.93	3.93
1:02.47	29.25	33.22	3.97

# Race Analysis Comparison

- This analysis confirms that energy distribution is more evenly dispersed in long-axis strokes vs. short-axis
- Additionally, this analysis shows that females race with a more narrow delta than males

Delta from 1st to 2nd 50	Long-Axis			Short-Axis		
	Freestyle	Backstroke	<b>Average</b>	Breaststroke	Butterfly	<b>Average</b>
Female	8.0%	4.9%	<b>6.5%</b>	12.7%	13.6%	<b>13.2%</b>
Male	9.5%	6.2%	<b>7.9%</b>	12.9%	14.2%	<b>13.6%</b>