

# *Establishing a Relative Baseline Race Strategy for Male 25-Yard Swim Races*

Select Competitions from 2010-2014

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the**swim**scout

# Agenda

- I. Introduction
- II. Analysis: 100-Yard Male Strokes
- III. Analysis: 200-Yard Male Strokes
- IV. Establishing the Baseline
- V. Comparisons

# Race Index

I. [100-Yard Male Butterfly](#)

II. [100-Yard Male Backstroke](#)

III. [100-Yard Male Breaststroke](#)

IV. [100-Yard Male Freestyle](#)

V. [200-Yard Male Butterfly](#)

VI. [200-Yard Male Backstroke](#)

VII. [200-Yard Male Breaststroke](#)

VIII. [200-Yard Male Freestyle](#)

# Introduction

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## Section I

# Home Page

## The Subject

- An analysis of the top five male finishers in each of the 100-yard and 200-yard stroke finals from 2010-2014 NCAA Division I Championships

## The Objective

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

## The Approach

- Separate and analyze each lap of the race to develop an average split delta, in percentage terms, for the second (and third and fourth, when applicable) 50 of when baselining from the first 50 of the race

## The Advantage

- A tailored list of recommended splits for a range of times in order to give swimmers a factual approach to specific goal times
- Comparing percentages, rather than absolute times, does not disfavor any swimmers

# Variables

## Sex

- Male

## Session

- A-Final

## Distance

- 100 yards
- 200 Yards

## Place

- 1<sup>st</sup> – 5<sup>th</sup>

## Stroke

- Butterfly
- Backstroke
- Breaststroke
- Freestyle

## Competitions

- Division 1 NCAA Championships
  - 2010 – 2014 (five meets total)

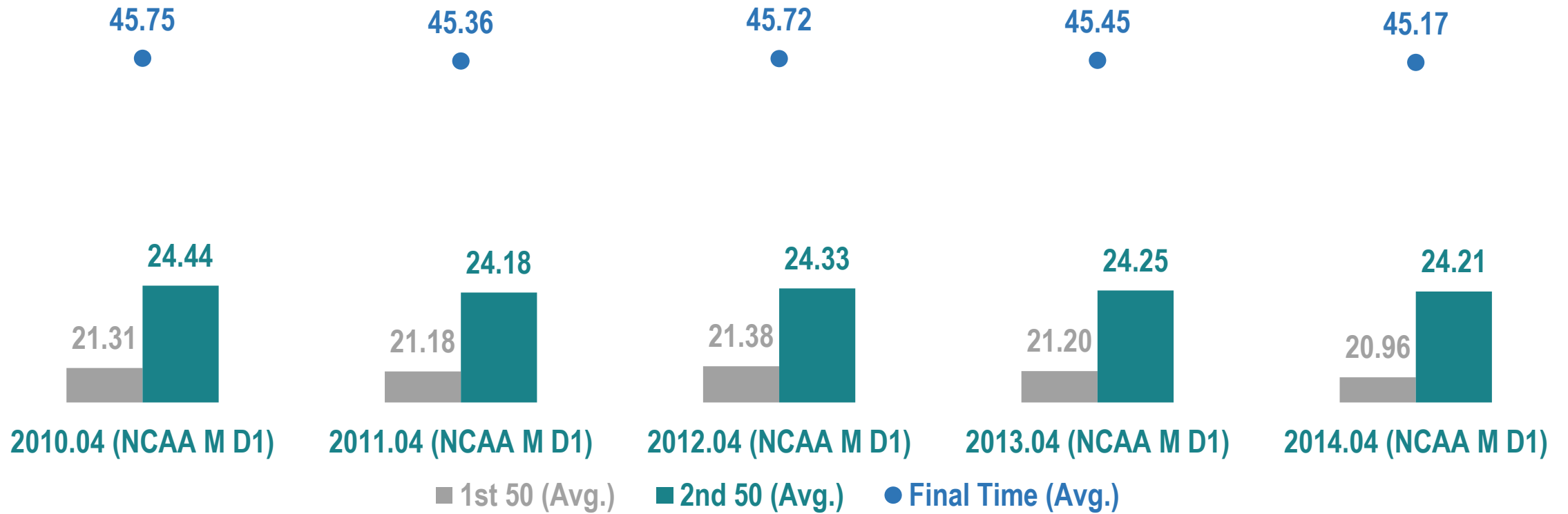
# Analysis: 100-yard Male Strokes

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## Section II

# SCY Male 100 Butterfly: Race Averages

*Average Time – 45.49*



Note: Chart not drawn to scale  
Source: NCAA.org

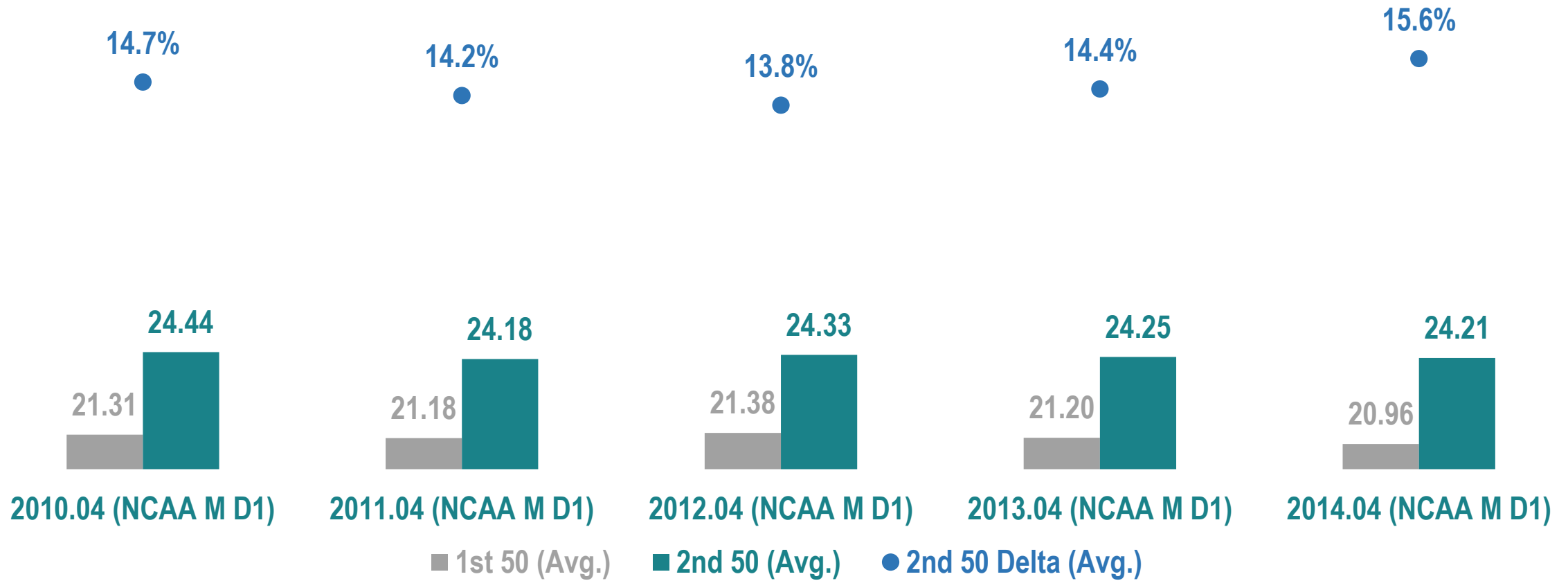


# SCY Male 100 Butterfly: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 21.21

Average 2<sup>nd</sup> 50: 24.28

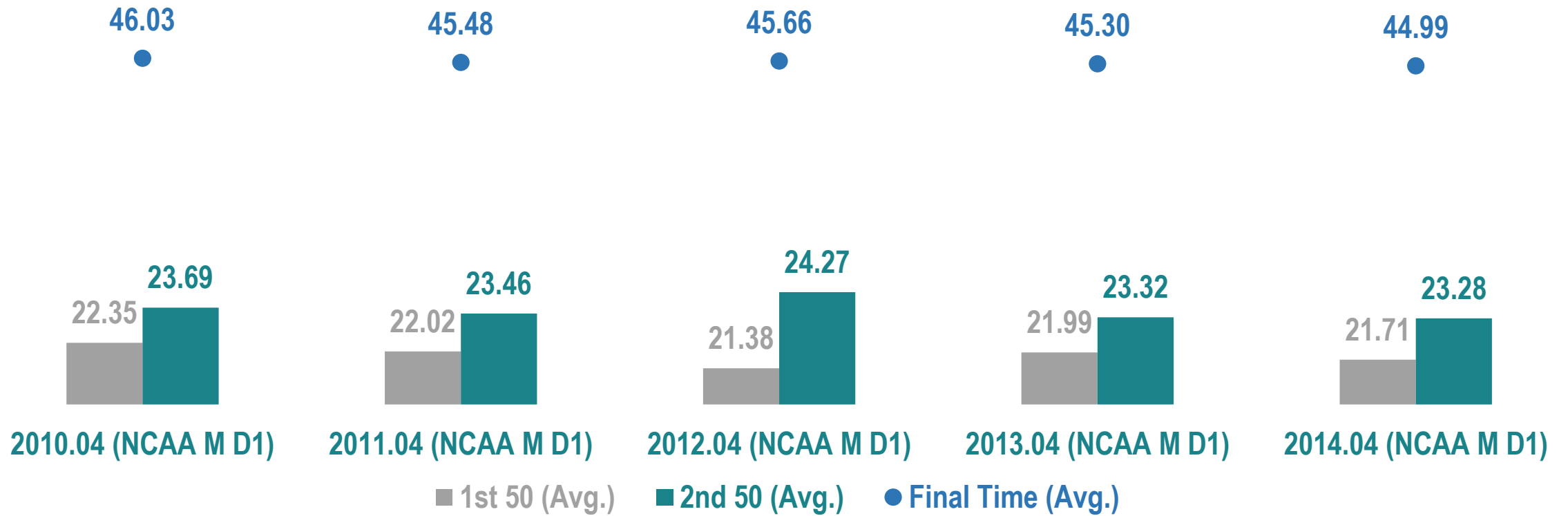
Average Split Delta: 14.5%



Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 100 Backstroke: Race Averages

*Average Time – 45.49*



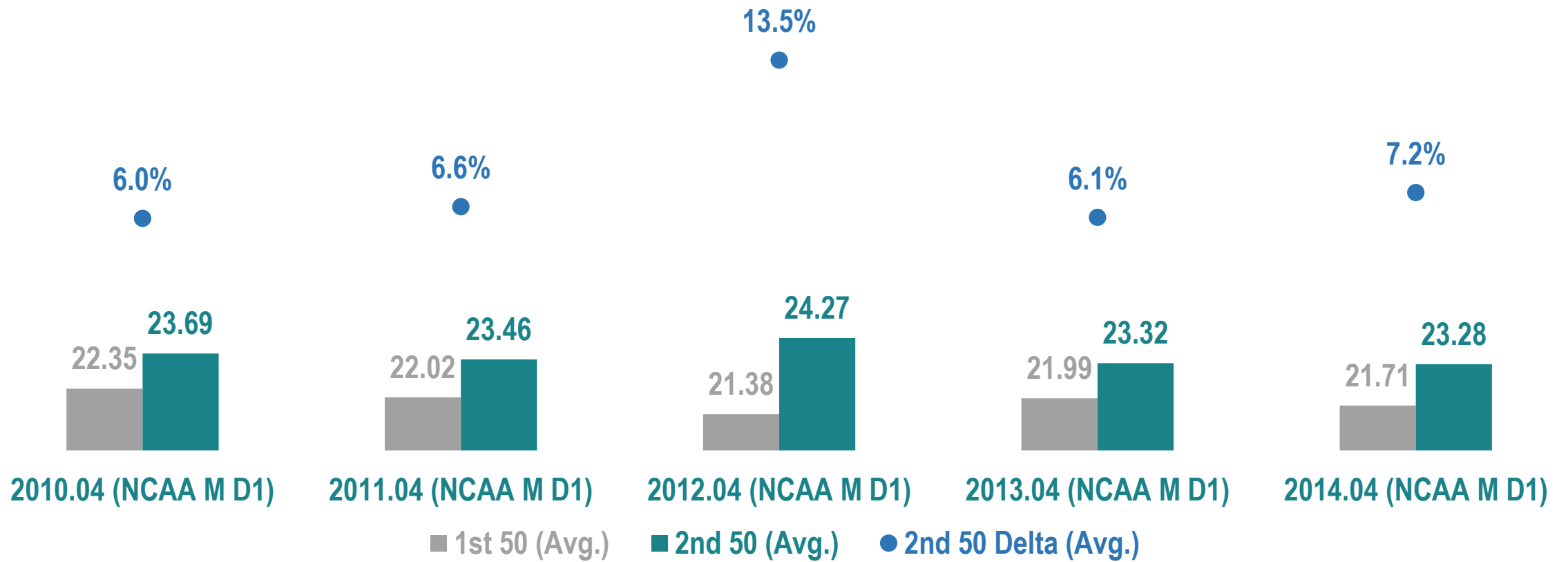
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 100 Backstroke: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 21.89

Average 2<sup>nd</sup> 50: 23.60

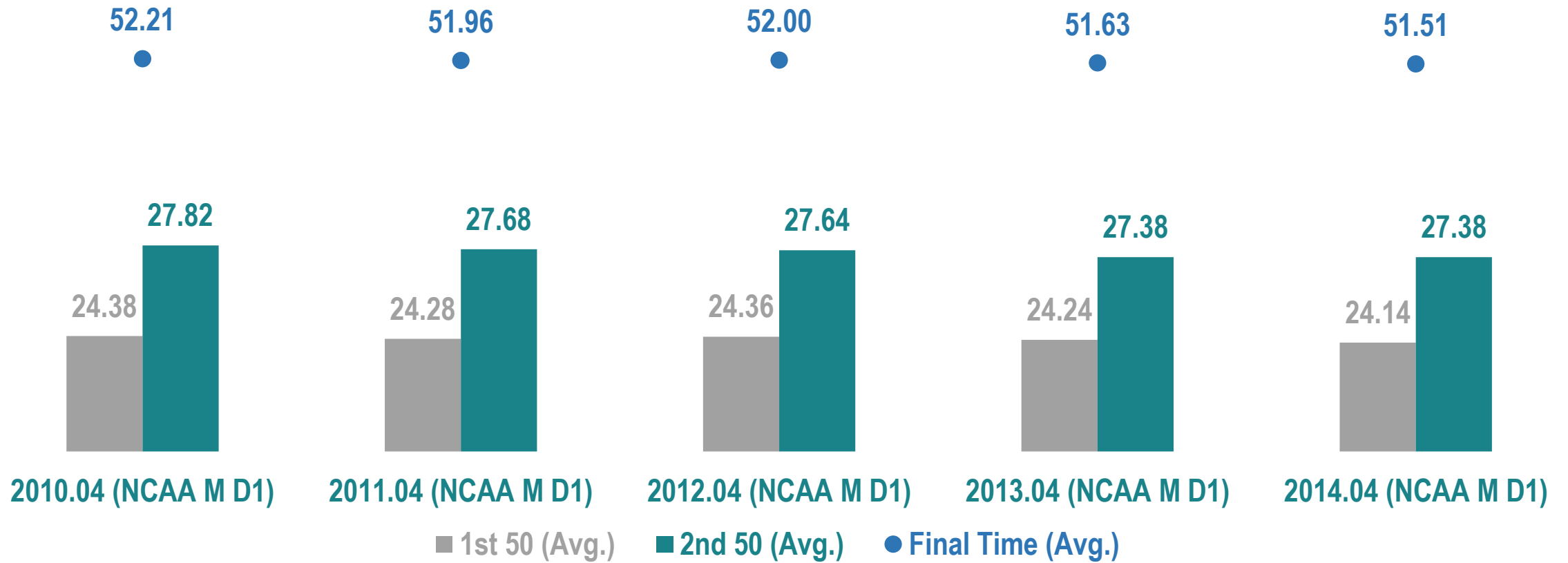
Average Split Delta: 7.9%



Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 100 Breaststroke: Race Averages

*Average Time – 51.86*



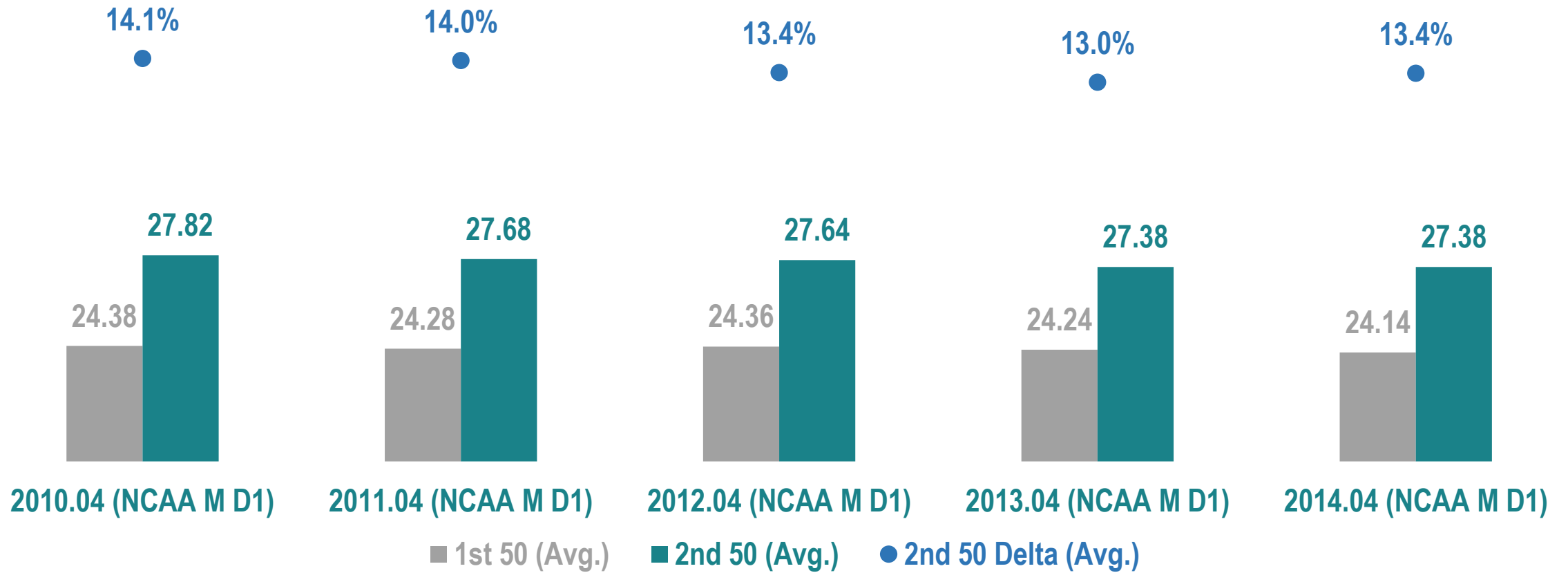
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 100 Breaststroke: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 24.28

Average 2<sup>nd</sup> 50: 27.58

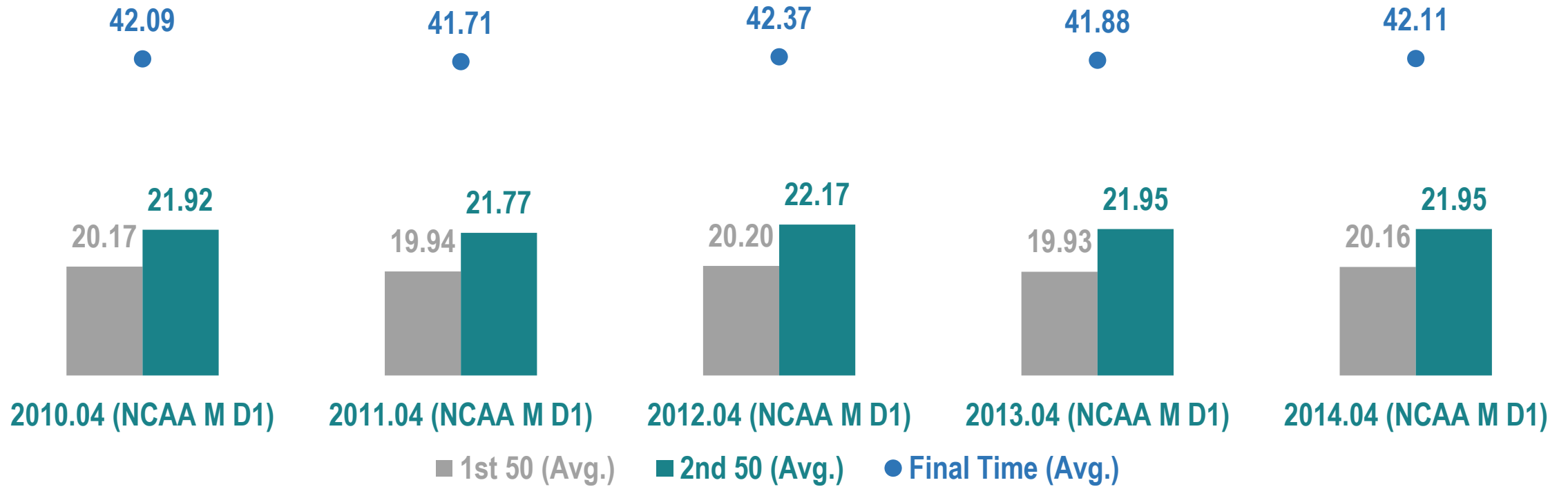
Average Split Delta: 13.6%



Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 100 Freestyle: Race Averages

*Average Time – 42.03*



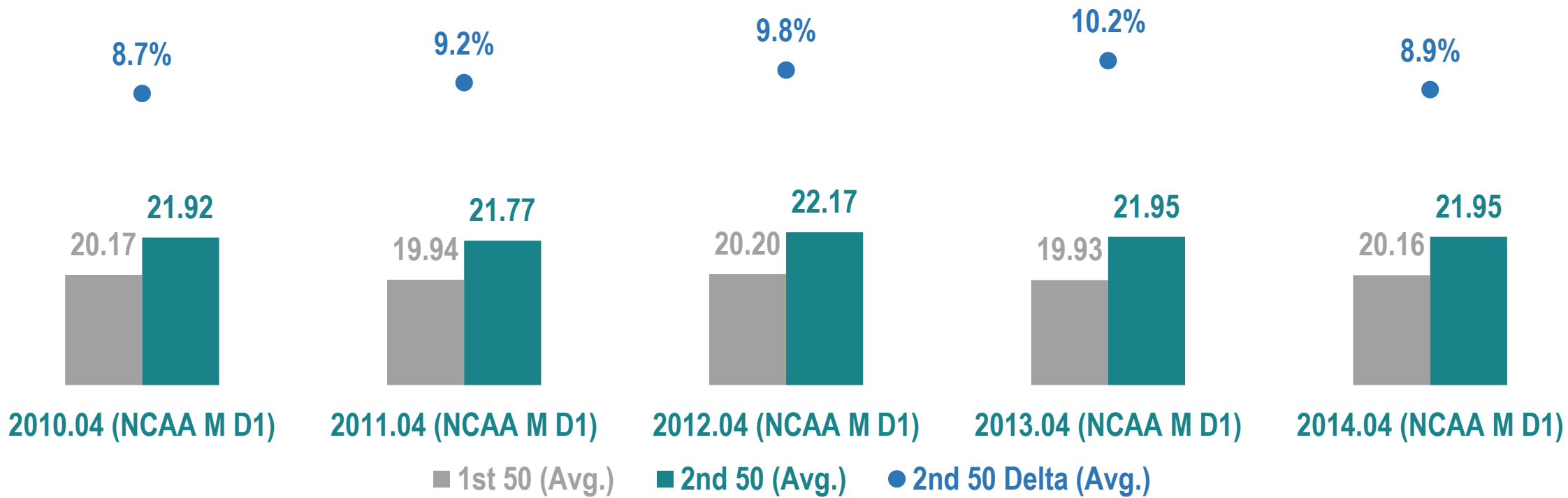
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 100 Freestyle: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 20.08

Average 2<sup>nd</sup> 50: 21.95

Average Split Delta: 9.3%



Note: Chart not drawn to scale  
Source: NCAA.org

# Analysis: 200-Yard Male Strokes

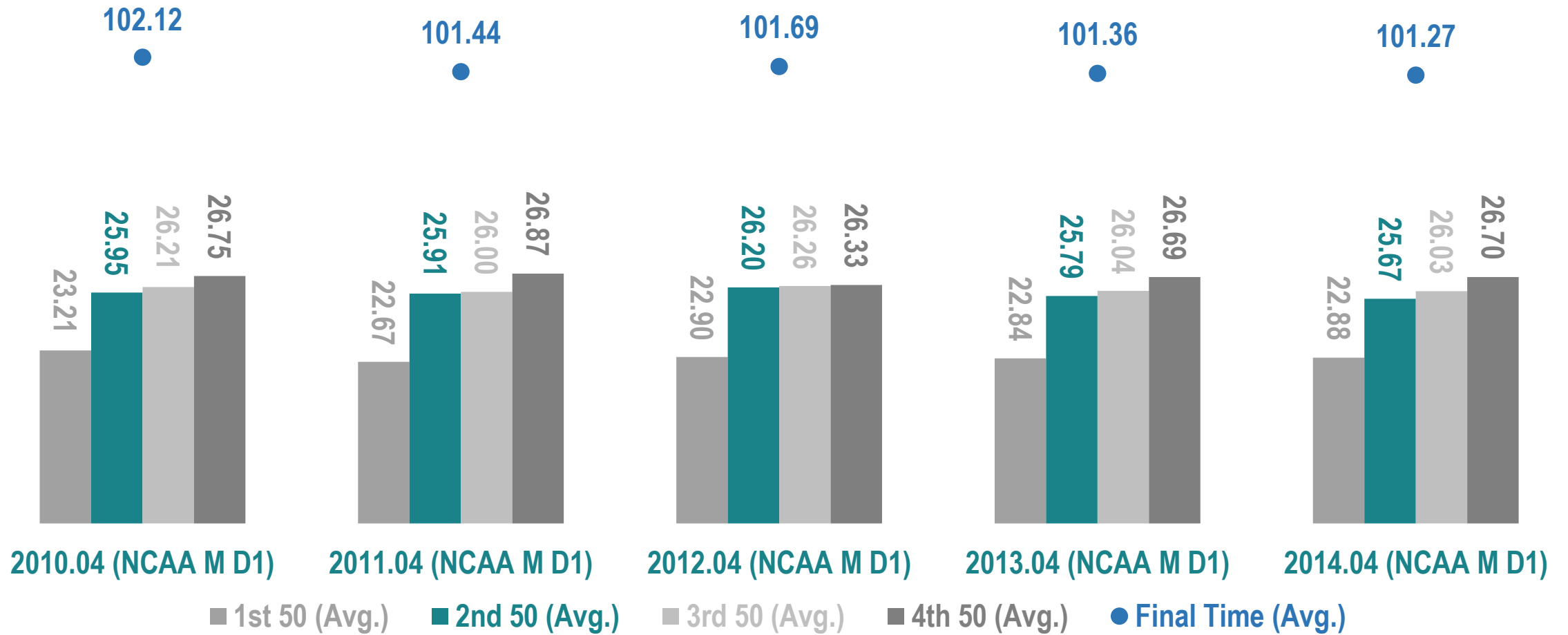
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Section III



# SCY Male 200 Butterfly: Race Averages

Average Time – 1:41.58



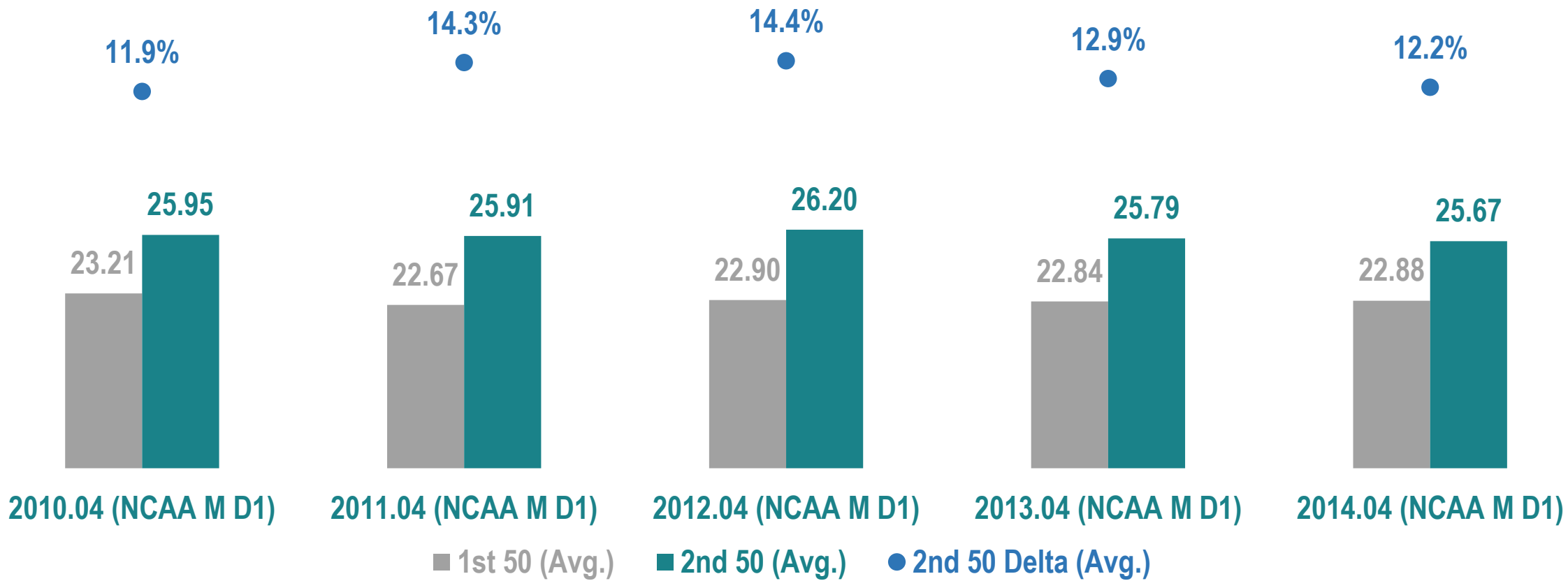
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Butterfly: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 22.90

Average 2<sup>nd</sup> 50: 25.90

Average Split Delta: 13.1%



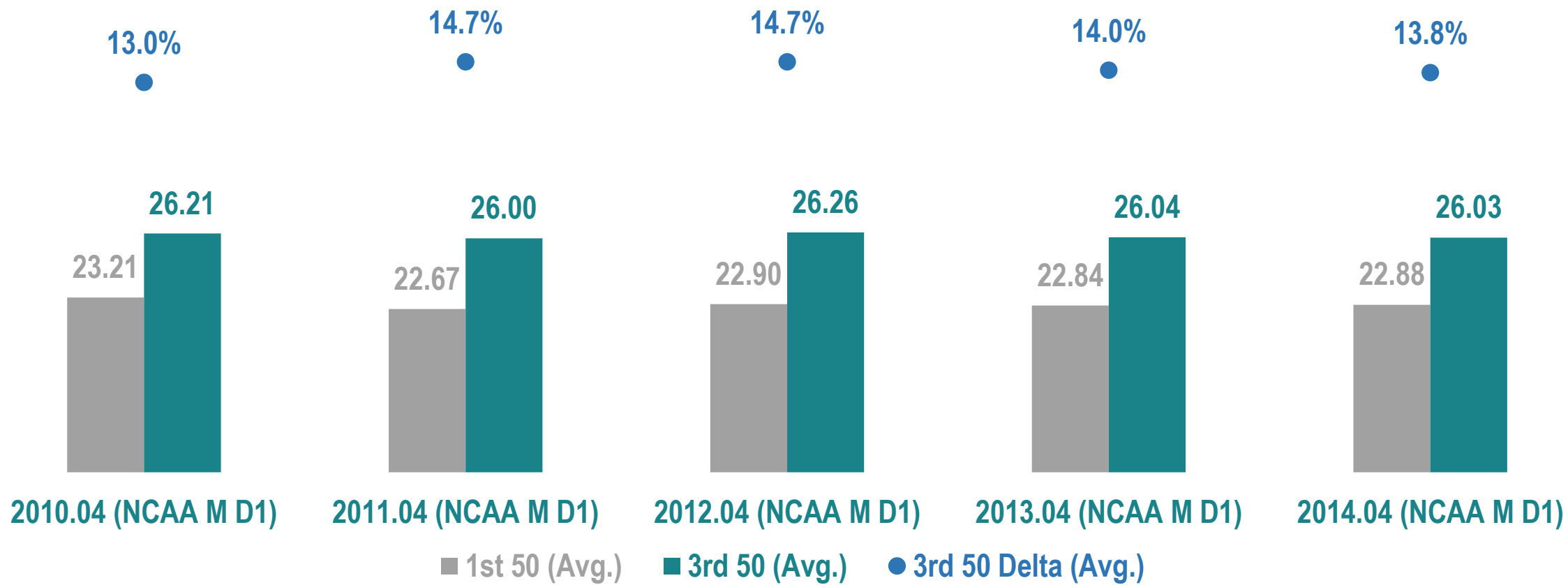
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Butterfly: 1<sup>st</sup> → 3<sup>rd</sup> 50

Average 1<sup>st</sup> 50: 22.90

Average 3<sup>rd</sup> 50: 26.11

Average Split Delta: 14.0%



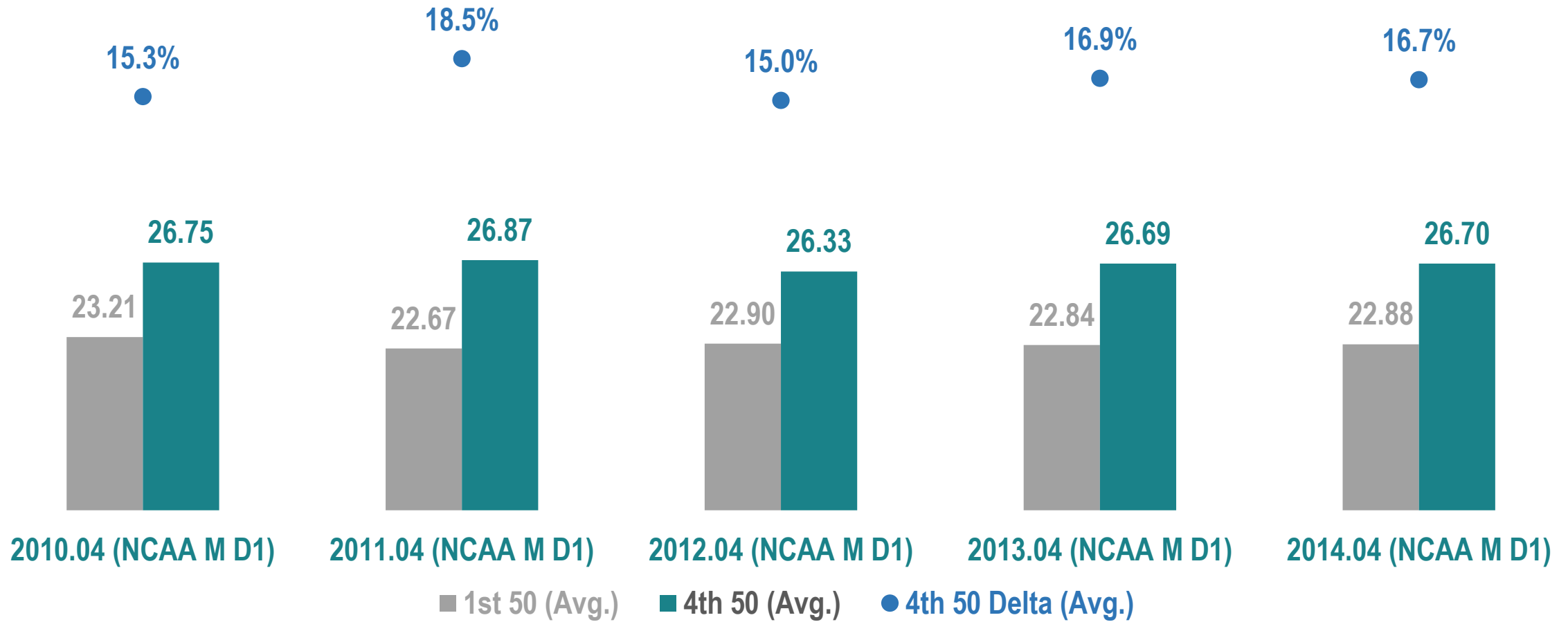
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Butterfly: 1<sup>st</sup> → 4<sup>th</sup> 50

Average 1<sup>st</sup> 50: 22.90

Average 4<sup>th</sup> 50: 26.67

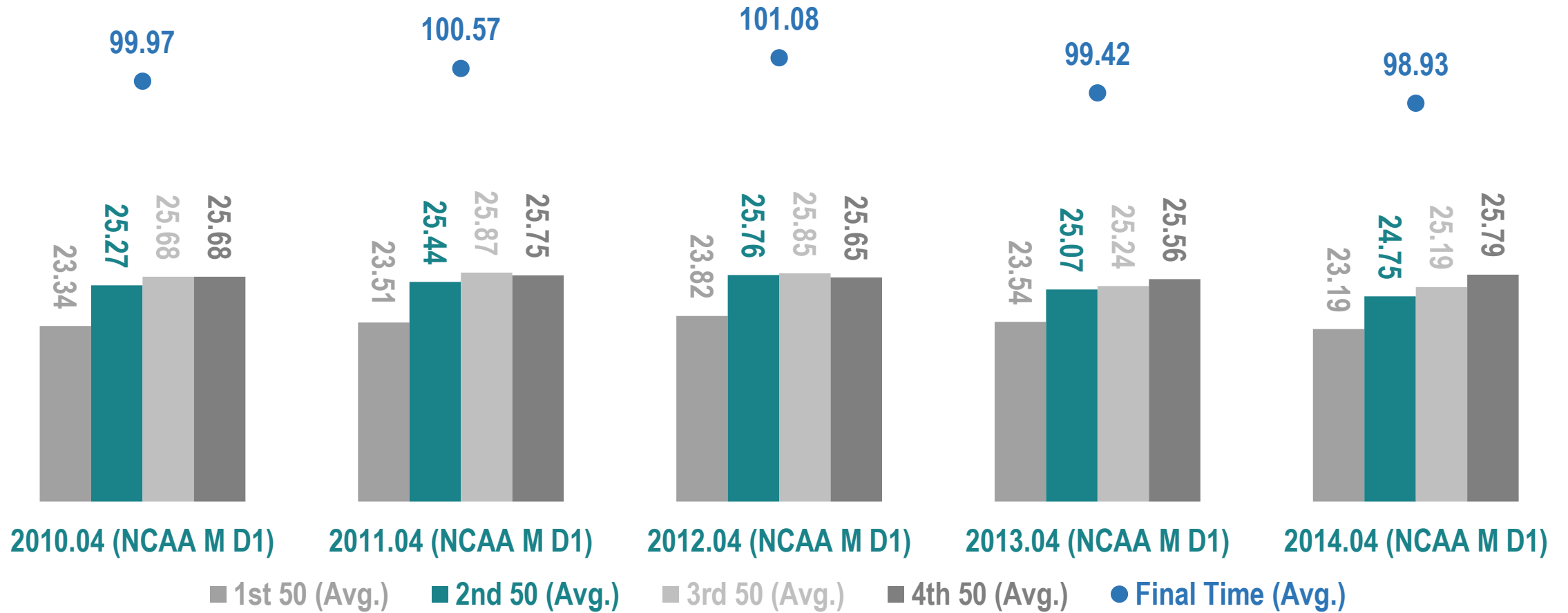
Average Split Delta: 16.5%



Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Backstroke: Race Averages

Average Time – 1:39.99



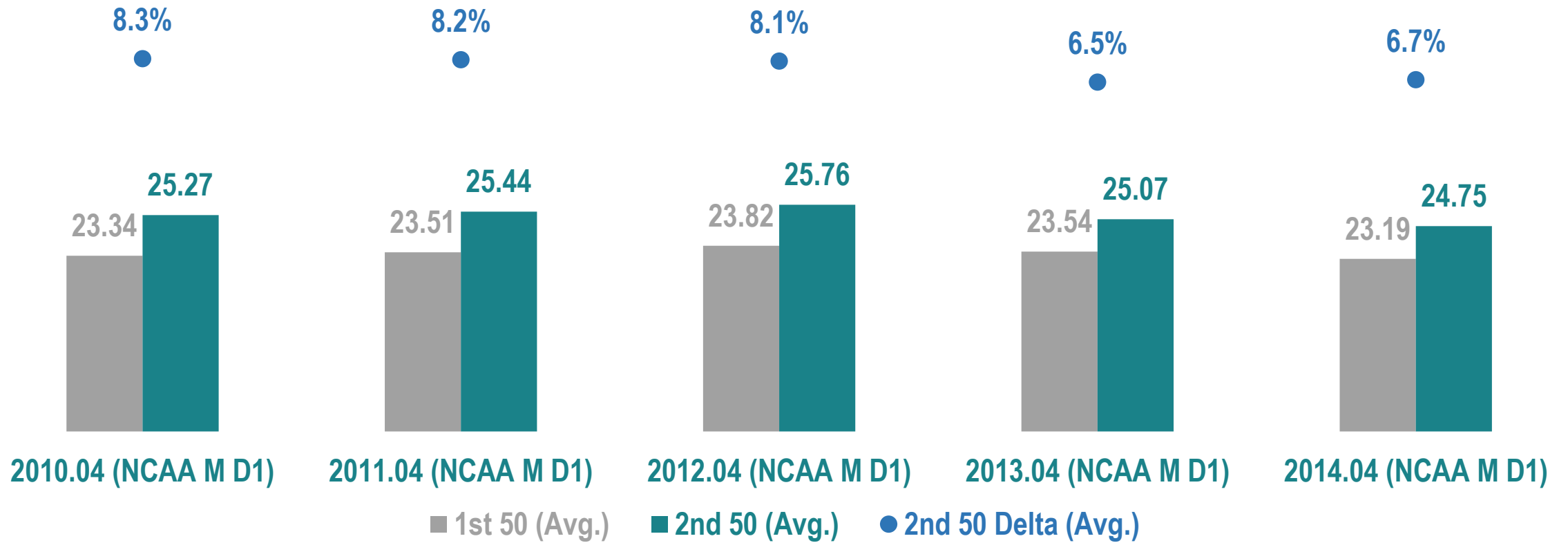
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Backstroke: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 23.48

Average 2<sup>nd</sup> 50: 25.26

Average Split Delta: 7.6%



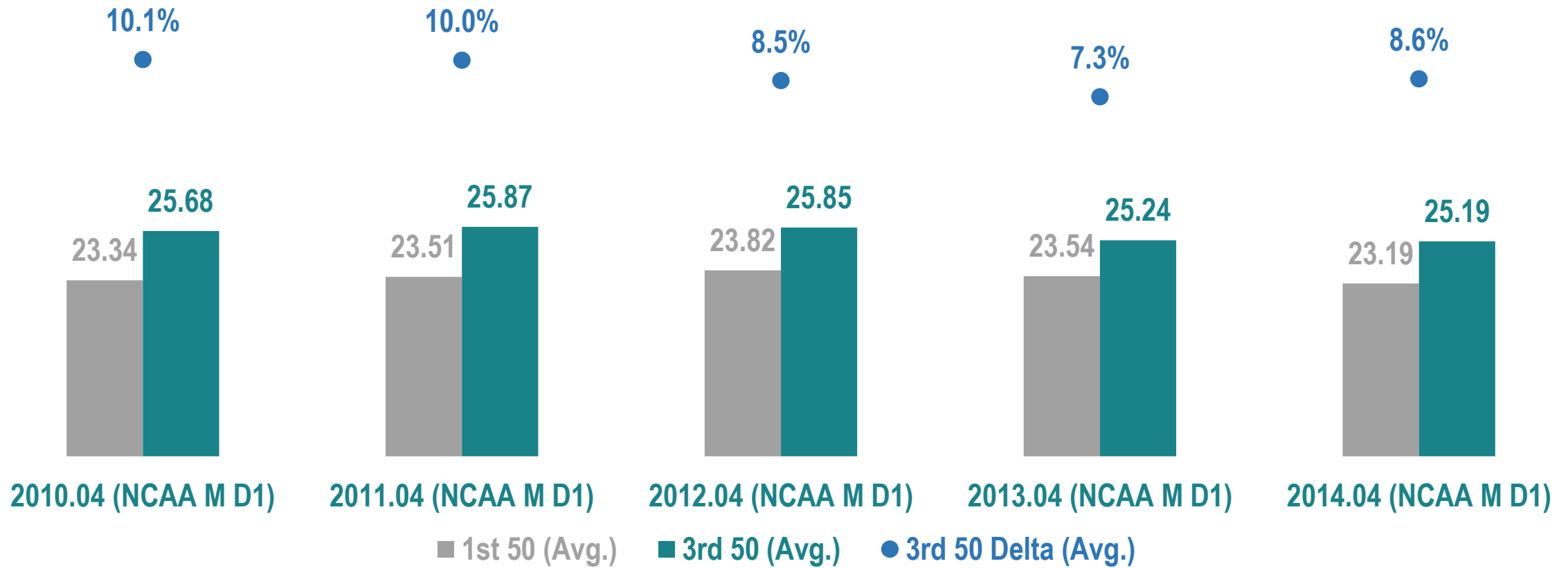
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Backstroke: 1<sup>st</sup> → 3<sup>rd</sup> 50

Average 1<sup>st</sup> 50: 23.48

Average 3<sup>rd</sup> 50: 25.57

Average Split Delta: 8.9%



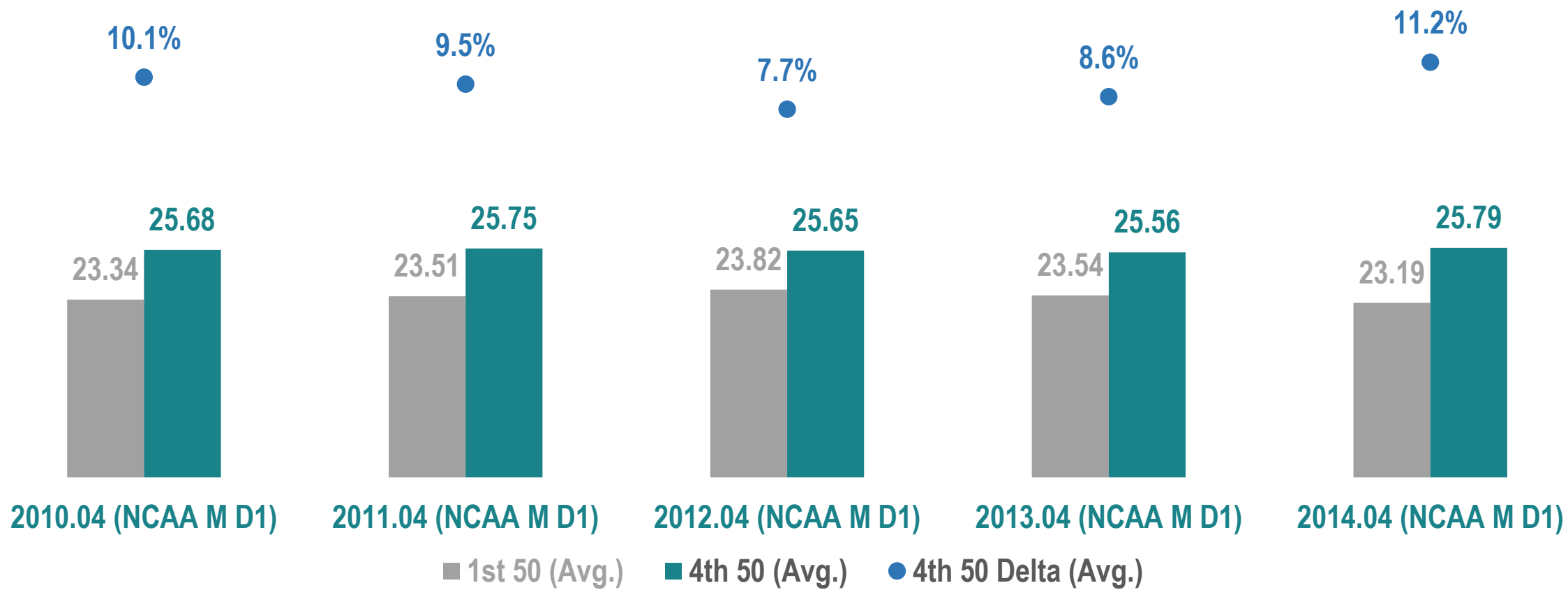
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Backstroke: 1<sup>st</sup> → 4<sup>th</sup> 50

Average 1<sup>st</sup> 50: 23.48

Average 4<sup>th</sup> 50: 25.69

Average Split Delta: 9.4%

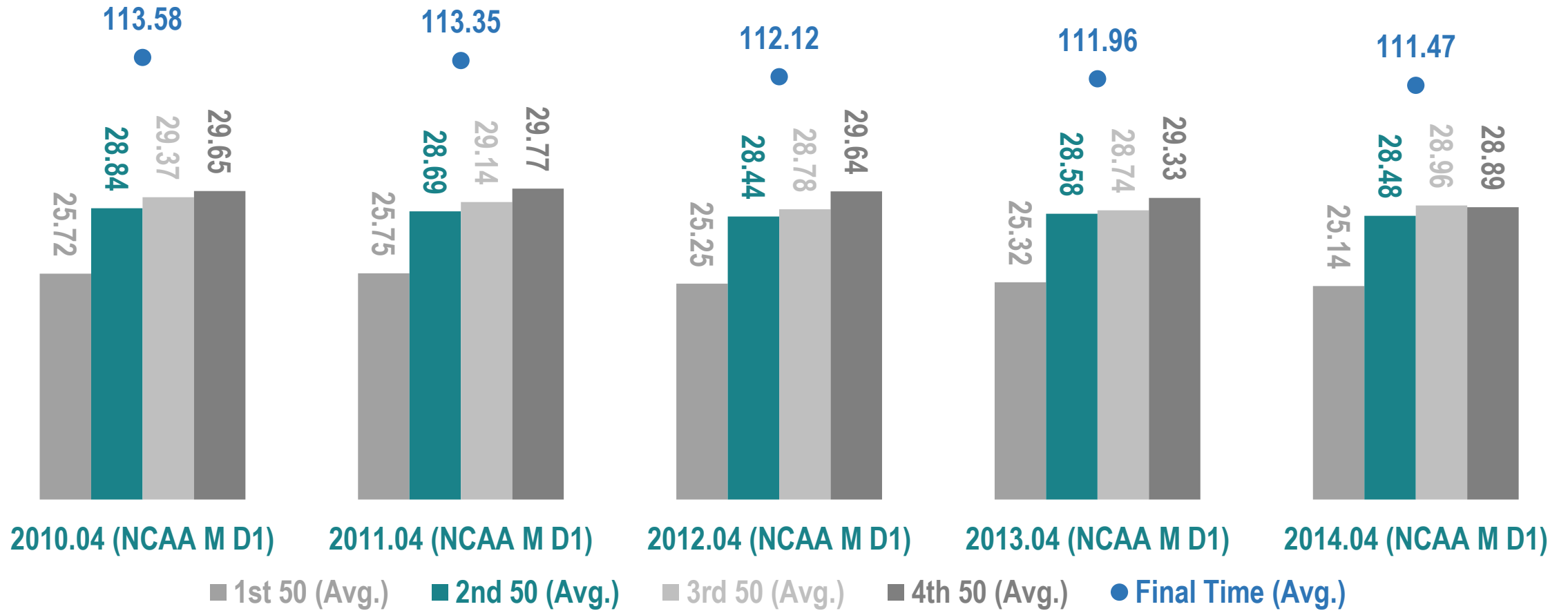


Note: Chart not drawn to scale  
Source: NCAA.org



# SCY Male 200 Breaststroke: Race Averages

Average Time – 1:52.50



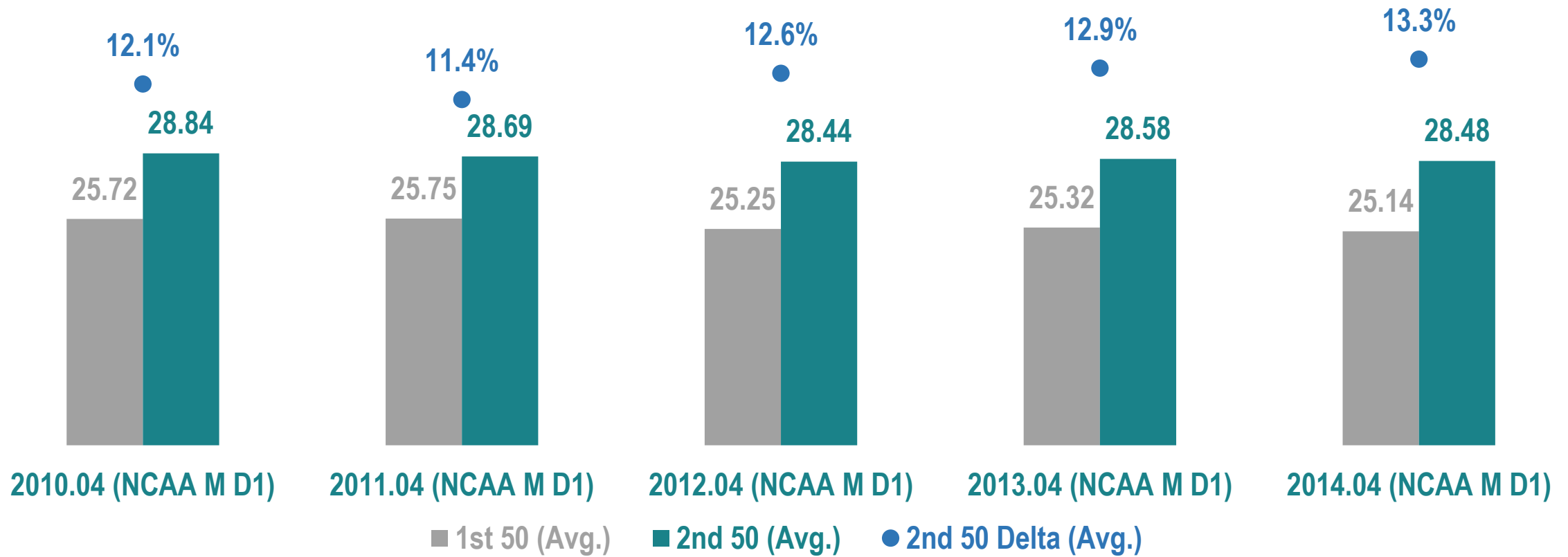
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Breaststroke: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 25.44

Average 2<sup>nd</sup> 50: 28.61

Average Split Delta: 12.5%



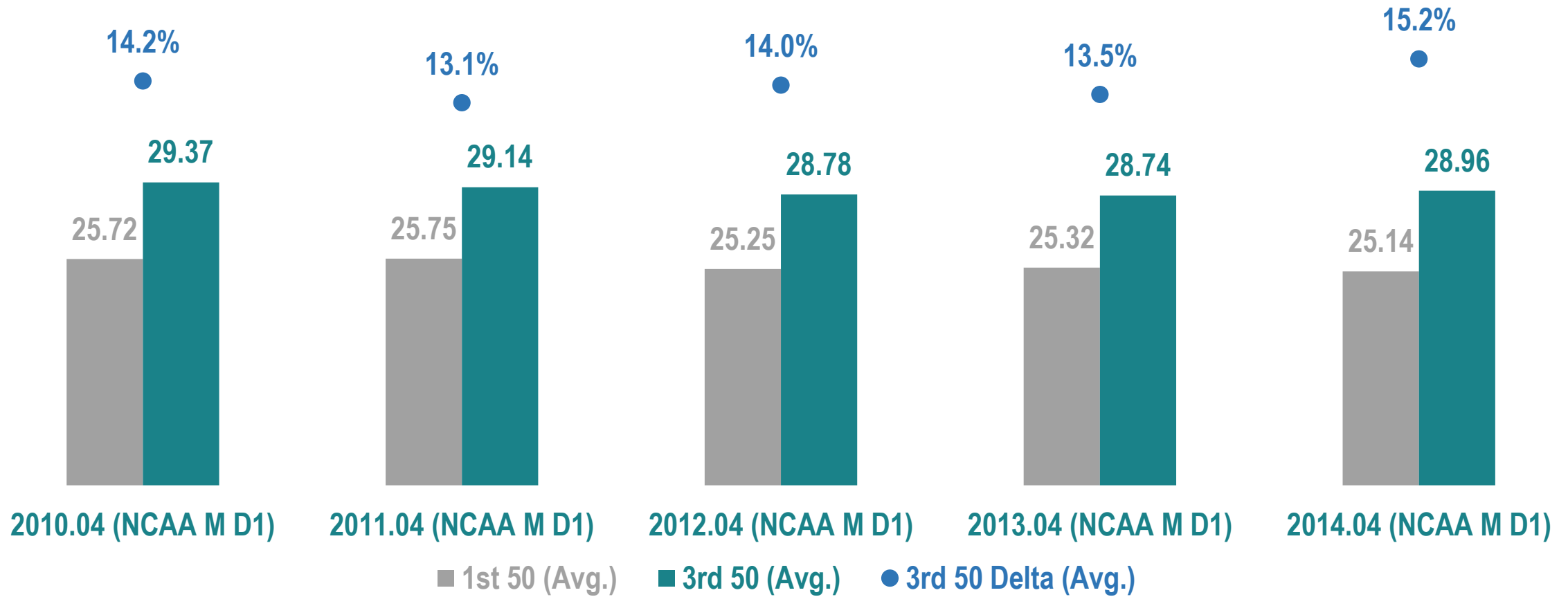
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Breaststroke: 1<sup>st</sup> → 3<sup>rd</sup> 50

Average 1<sup>st</sup> 50: 25.44

Average 3<sup>rd</sup> 50: 29.00

Average Split Delta: 14.0%



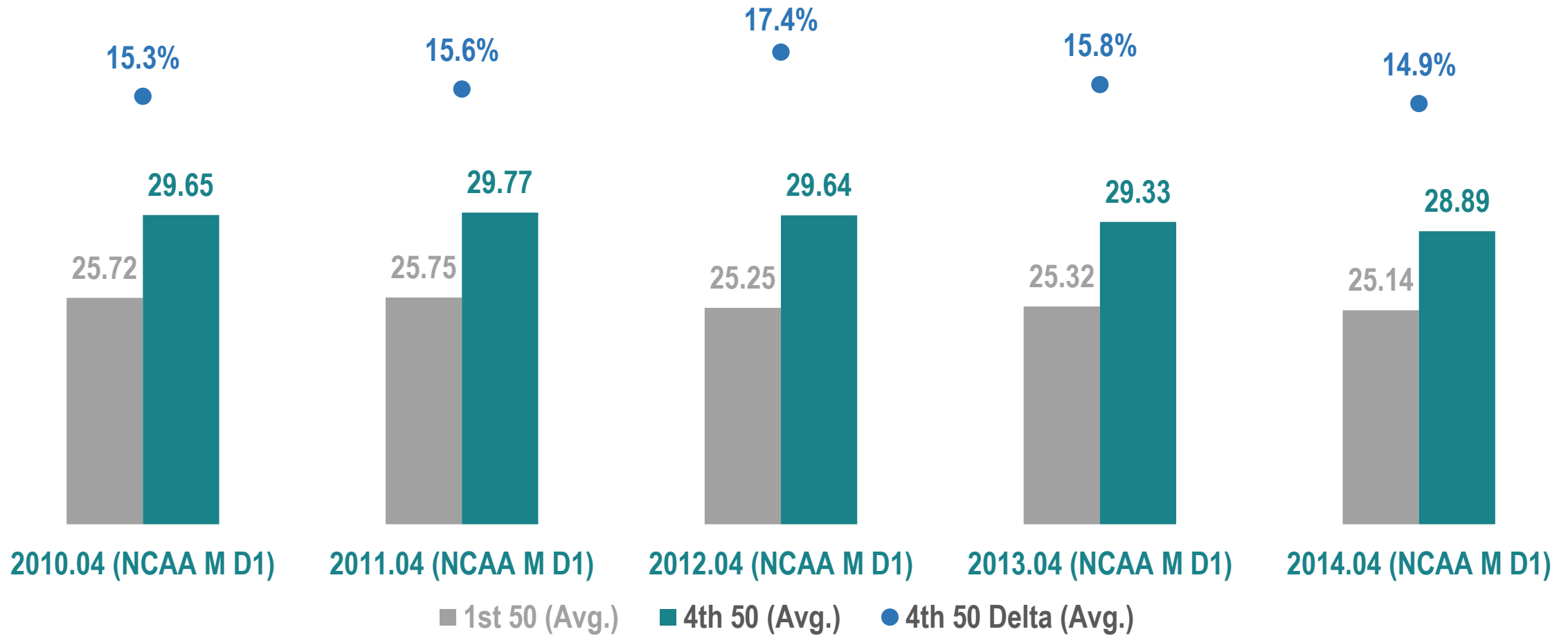
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Breaststroke: 1<sup>st</sup> → 4<sup>th</sup> 50

Average 1<sup>st</sup> 50: 25.44

Average 4<sup>th</sup> 50: 29.46

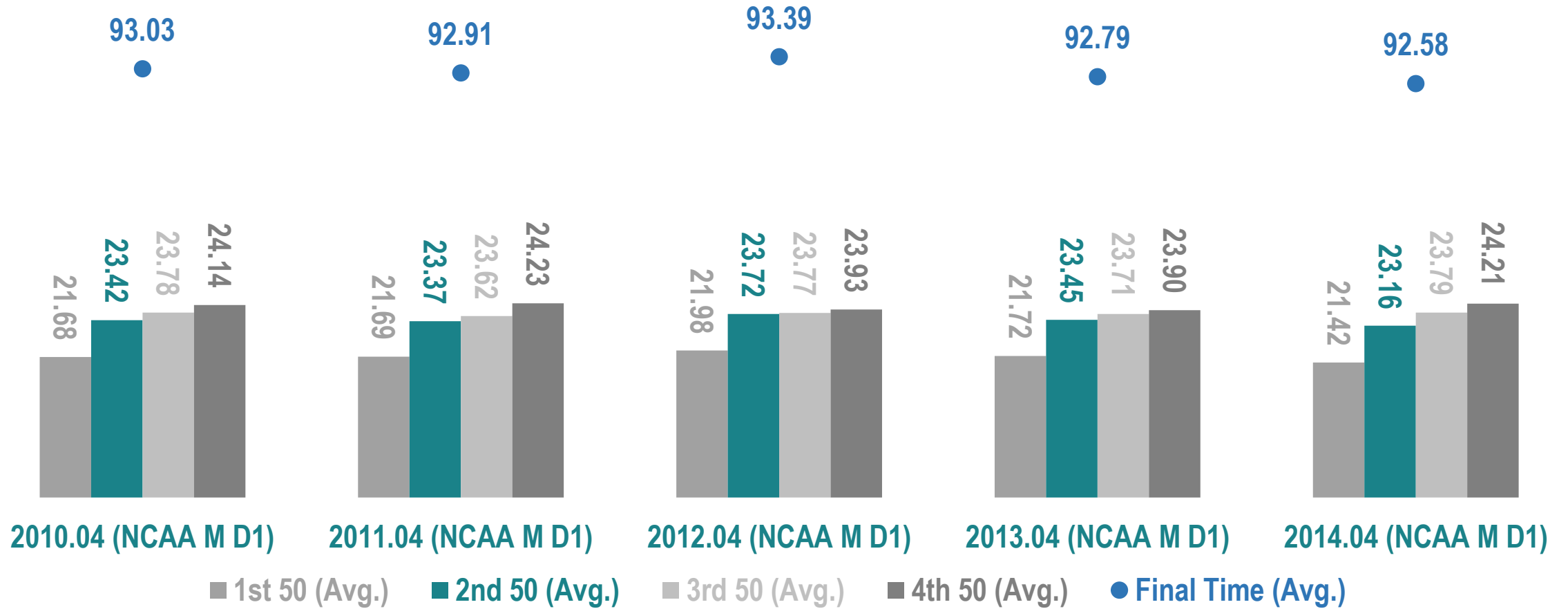
Average Split Delta: 15.8%



Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Freestyle: Race Averages

Average Time – 1:32.94



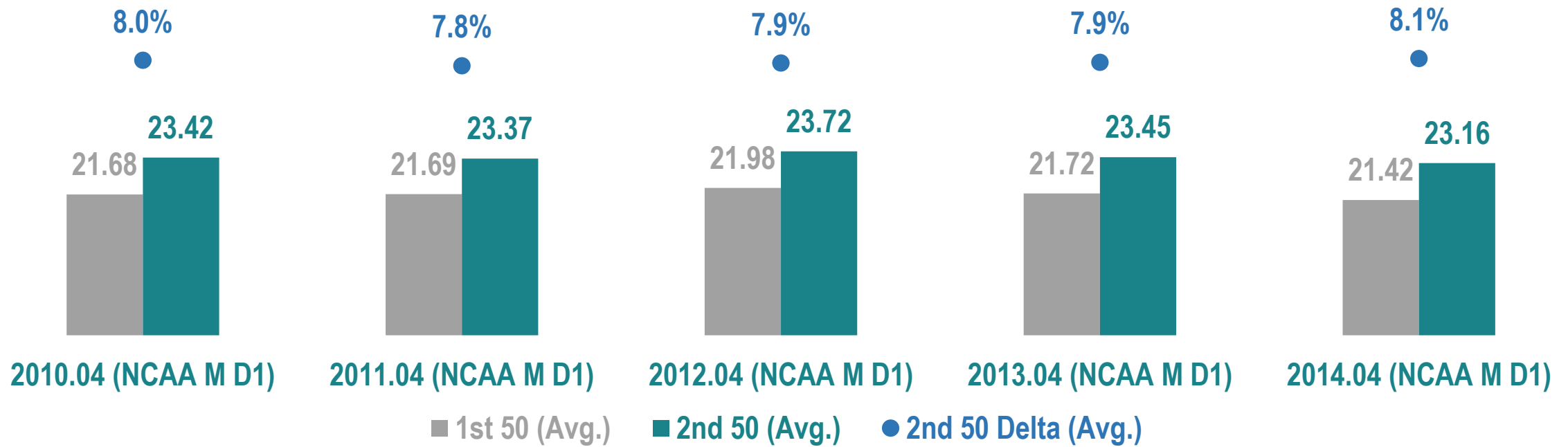
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Freestyle: 1<sup>st</sup> → 2<sup>nd</sup> 50

Average 1<sup>st</sup> 50: 21.70

Average 2<sup>nd</sup> 50: 23.42

Average Split Delta: 7.9%



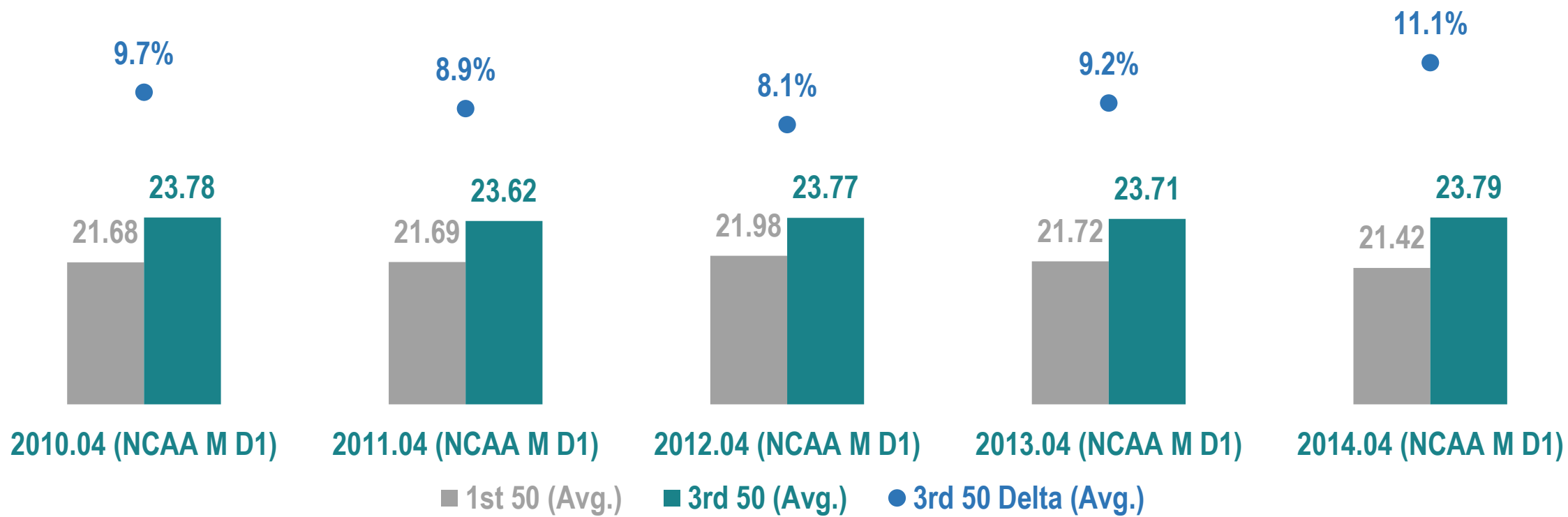
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Freestyle: 1<sup>st</sup> → 3<sup>rd</sup> 50

Average 1<sup>st</sup> 50: 21.70

Average 3<sup>rd</sup> 50: 23.73

Average Split Delta: 9.4%



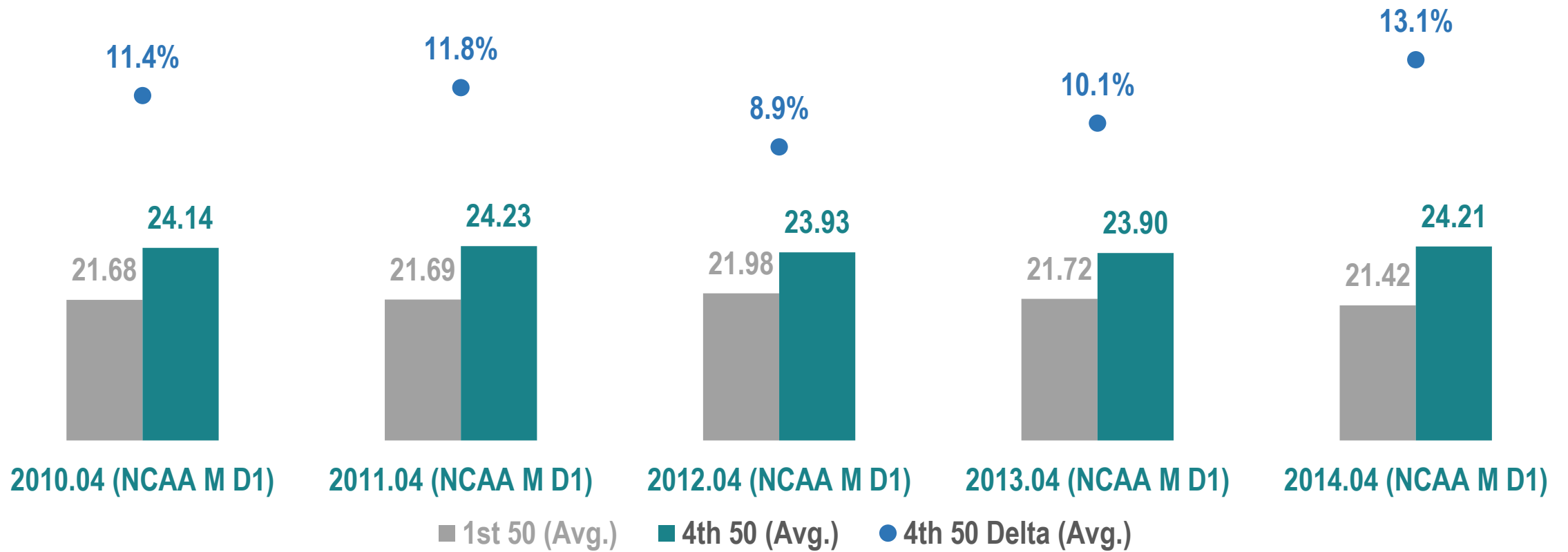
Note: Chart not drawn to scale  
Source: NCAA.org

# SCY Male 200 Freestyle: 1<sup>st</sup> → 4<sup>th</sup> 50

Average 1<sup>st</sup> 50: 21.70

Average 4<sup>th</sup> 50: 24.08

Average Split Delta: 11.0%



Note: Chart not drawn to scale  
Source: NCAA.org



# Establishing the Baseline

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## Section V

# SCY Male 100Y Butterfly: Baseline

- Using the average first 50 (21.21) 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> = 14.5%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd (+14.5%)	
40.92	19.08	21.85	2.77
41.55	19.37	22.18	2.81
42.18	19.66	22.52	2.85
42.82	19.96	22.86	2.90
43.48	20.27	23.21	2.94
44.14	20.58	23.56	2.99
44.81	20.89	23.92	3.03
45.49	21.21	24.28	3.08
46.17	21.52	24.65	3.12
46.87	21.85	25.02	3.17
47.57	22.18	25.39	3.22
48.28	22.51	25.78	3.27
49.01	22.85	26.16	3.32
49.74	23.19	26.55	3.37
50.49	23.54	26.95	3.42

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# SCY Male 100Y Backstroke: Baseline

- Using the average first 50 (21.89) 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> = 7.9%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd (+7.9%)	
40.93	19.69	21.24	1.55
41.56	19.99	21.57	1.57
42.19	20.30	21.89	1.60
42.83	20.61	22.23	1.62
43.49	20.92	22.57	1.65
44.15	21.24	22.91	1.67
44.82	21.56	23.26	1.70
45.50	21.89	23.61	1.72
46.18	22.22	23.97	1.75
46.88	22.55	24.33	1.78
47.58	22.89	24.69	1.80
48.29	23.23	25.06	1.83
49.02	23.58	25.44	1.86
49.75	23.93	25.82	1.88
50.50	24.29	26.21	1.91

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# SCY Male 100Y Breaststroke: Baseline

- Using the average first 50 (24.28) 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> = 13.6%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd (+13.6%)	
46.66	21.84	24.81	2.97
47.37	22.18	25.19	3.02
48.09	22.51	25.58	3.06
48.82	22.86	25.97	3.11
49.57	23.21	26.36	3.16
50.32	23.56	26.76	3.20
51.09	23.92	27.17	3.25
51.87	24.28	27.58	3.30
52.64	24.65	28.00	3.35
53.43	25.02	28.42	3.40
54.23	25.39	28.84	3.45
55.05	25.77	29.28	3.50
55.87	26.16	29.72	3.56
56.71	26.55	30.16	3.61
57.56	26.95	30.61	3.66

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# SCY Male 100Y Freestyle: Baseline

- Using the average first 50 (20.08) 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> = 9.3%

Final Time	Splits by 50		Split Delta (seconds)
	1st	2nd (+9.3%)	
37.81	18.06	19.75	1.69
38.39	18.34	20.05	1.71
38.97	18.62	20.36	1.74
39.57	18.90	20.67	1.76
40.17	19.19	20.98	1.79
40.78	19.48	21.30	1.82
41.40	19.78	21.62	1.85
42.03	20.08	21.95	1.87
42.66	20.38	22.28	1.90
43.30	20.69	22.62	1.93
43.95	21.00	22.96	1.96
44.61	21.31	23.30	1.99
45.28	21.63	23.65	2.02
45.96	21.96	24.01	2.05
46.65	22.28	24.37	2.08

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# SCY Male 200Y Butterfly: Baseline

- Using the average first 50 (22.90) 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> = 13.1%
  - 1<sup>st</sup> → 3<sup>rd</sup> = 14.0%
  - 1<sup>st</sup> → 4<sup>th</sup> = 16.5%

Final Time	Splits by 50				Split Delta			100 Split
	1st	2nd	3rd	4th	2nd (+13.1%)	3rd (+14.0%)	4th (+16.5%)	
1:31.38	20.60	23.30	23.49	23.99	2.70	0.18	0.50	43.90
1:32.77	20.91	23.66	23.84	24.35	2.75	0.19	0.51	44.57
1:34.18	21.23	24.02	24.21	24.73	2.79	0.19	0.52	45.25
1:35.62	21.55	24.38	24.58	25.10	2.83	0.19	0.53	45.94
1:37.07	21.88	24.76	24.95	25.48	2.87	0.19	0.53	46.64
1:38.55	22.22	25.13	25.33	25.87	2.92	0.20	0.54	47.35
1:40.05	22.55	25.52	25.72	26.27	2.96	0.20	0.55	48.07
1:41.58	22.90	25.90	26.11	26.67	3.01	0.20	0.56	48.80
1:43.10	23.24	26.29	26.50	27.07	3.05	0.21	0.57	49.53
1:44.65	23.59	26.69	26.90	27.47	3.10	0.21	0.58	50.28
1:46.21	23.94	27.09	27.30	27.88	3.14	0.21	0.58	51.03
1:47.81	24.30	27.49	27.71	28.30	3.19	0.22	0.59	51.80
1:49.43	24.67	27.91	28.13	28.73	3.24	0.22	0.60	52.57
1:51.07	25.04	28.32	28.55	29.16	3.29	0.22	0.61	53.36
1:52.73	25.41	28.75	28.98	29.60	3.34	0.23	0.62	54.16

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# SCY Male 200Y Backstroke: Baseline

- Using the average first 50 (23.48) 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> = 7.6%
  - 1<sup>st</sup> → 3<sup>rd</sup> = 8.9%
  - 1<sup>st</sup> → 4<sup>th</sup> = 9.4%

Final Time	Splits by 50				Split Delta			100 Split
	1st	2nd	3rd	4th	2nd (+7.6%)	3rd (+8.9%)	4th (+9.4%)	
1:29.96	21.12	22.72	23.00	23.11	1.60	0.28	0.11	43.85
1:31.11	21.45	23.07	23.35	23.46	1.63	0.28	0.11	44.52
1:32.72	21.77	23.42	23.71	23.82	1.65	0.28	0.11	45.19
1:34.13	22.10	23.78	24.07	24.18	1.68	0.29	0.11	45.88
1:35.56	22.44	24.14	24.43	24.55	1.70	0.29	0.11	46.58
1:37.02	22.78	24.51	24.81	24.92	1.73	0.30	0.11	47.29
1:38.49	23.13	24.88	25.18	25.30	1.75	0.30	0.12	48.01
1:39.99	23.48	25.26	25.57	25.69	1.78	0.31	0.12	48.74
1:41.49	23.83	25.64	25.95	26.07	1.81	0.31	0.12	49.47
1:43.02	24.19	26.02	26.34	26.46	1.83	0.32	0.12	50.22
1:44.56	24.55	26.41	26.73	26.86	1.86	0.32	0.12	50.97
1:46.13	24.92	26.81	27.14	27.26	1.89	0.32	0.13	51.73
1:47.72	25.30	27.21	27.54	27.67	1.92	0.33	0.13	52.51
1:49.34	25.68	27.62	27.96	28.09	1.95	0.33	0.13	53.30
1:50.98	26.06	28.04	28.38	28.51	1.98	0.34	0.13	54.10

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# SCY Male 200Y Breaststroke: Baseline

- Using the average first 50 (25.44) 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> = 12.5%
  - 1<sup>st</sup> → 3<sup>rd</sup> = 14.0%
  - 1<sup>st</sup> → 4<sup>th</sup> = 15.8%

Final Time	Splits by 50				Split Delta			100 Split
	1st	2nd	3rd	4th	2nd (+12.5%)	3rd (+14.0%)	4th (+15.8%)	
1:41.20	22.88	25.73	26.09	26.50	2.85	0.35	0.41	48.62
1:42.74	23.23	26.13	26.48	26.90	2.89	0.36	0.42	49.36
1:44.31	23.59	26.52	26.89	27.31	2.94	0.36	0.43	50.11
1:45.90	23.95	26.93	27.30	27.73	2.98	0.37	0.43	50.87
1:47.51	24.31	27.34	27.71	28.15	3.03	0.37	0.44	51.65
1:49.15	24.68	27.75	28.13	28.58	3.07	0.38	0.45	52.43
1:50.81	25.06	28.18	28.56	29.01	3.12	0.38	0.45	53.23
1:52.50	25.44	28.61	29.00	29.46	3.17	0.39	0.46	54.04
1:54.18	25.82	29.04	29.43	29.90	3.22	0.40	0.47	54.85
1:55.90	26.21	29.47	29.87	30.35	3.26	0.40	0.47	55.68
1:57.63	26.60	29.91	30.32	30.80	3.31	0.41	0.48	56.51
1:59.40	27.00	30.36	30.78	31.26	3.36	0.41	0.49	57.36
2:01.19	27.40	30.82	31.24	31.73	3.41	0.42	0.50	58.22
2:03.01	27.81	31.28	31.71	32.21	3.46	0.43	0.50	59.09
2:04.85	28.23	31.75	32.18	32.69	3.52	0.43	0.51	59.98

Note: Numbers may not add up due to rounding.  
Source: NCAA.org



# SCY Male 200Y Freestyle: Baseline

- Using the average first 50 (21.70) 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> = 7.9%
  - 1<sup>st</sup> → 3<sup>rd</sup> = 9.4%
  - 1<sup>st</sup> → 4<sup>th</sup> = 11.0%

Final Time	Splits by 50				Split Delta			100 Split
	1st	2nd	3rd	4th	2nd (+7.9%)	3rd (+9.4%)	4th (+11.0%)	
1:23.61	19.52	21.07	21.35	21.67	1.55	0.28	0.32	40.59
1:24.88	19.82	21.39	21.67	22.00	1.57	0.28	0.32	41.21
1:26.18	20.12	21.72	22.01	22.33	1.60	0.29	0.33	41.84
1:27.49	20.43	22.05	22.34	22.67	1.62	0.29	0.33	42.48
1:28.82	20.74	22.39	22.68	23.02	1.65	0.30	0.34	43.12
1:30.17	21.05	22.73	23.03	23.37	1.67	0.30	0.34	43.78
1:31.55	21.37	23.07	23.38	23.72	1.70	0.30	0.35	44.45
1:32.94	21.70	23.42	23.73	24.08	1.72	0.31	0.35	45.12
1:34.33	22.03	23.77	24.09	24.45	1.75	0.31	0.36	45.80
1:35.75	22.36	24.13	24.45	24.81	1.78	0.32	0.36	46.49
1:37.19	22.69	24.49	24.82	25.18	1.80	0.32	0.37	47.18
1:38.64	23.03	24.86	25.19	25.56	1.83	0.33	0.37	47.89
1:40.12	23.38	25.23	25.57	25.95	1.86	0.33	0.38	48.61
1:41.63	23.73	25.61	25.95	26.33	1.88	0.34	0.38	49.34
1:43.15	24.08	26.00	26.34	26.73	1.91	0.34	0.39	50.08

Note: Numbers may not add up due to rounding.  
Source: NCAA.org

# Comparisons

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## Section VII

# Race Analysis Comparison

		Long Axis			Short Axis		
		Backstroke	Freestyle	Average	Butterfly	Breaststroke	Average
<b>100 Stroke Analysis</b>							
Female	1st → 2nd 50	6.4%	7.2%	<b>6.8%</b>	13.1%	12.3%	<b>12.7%</b>
Male	1st → 2nd 50	7.9%	9.3%	<b>8.6%</b>	14.5%	13.6%	<b>14.1%</b>
<b>200 Stroke Analysis</b>							
Female	1st → 2nd 50	5.9%	7.2%	<b>6.6%</b>	11.3%	11.3%	<b>11.3%</b>
	1st → 3rd 50	6.7%	8.2%	<b>7.5%</b>	13.3%	12.8%	<b>13.1%</b>
	1st → 4th 50	6.7%	8.3%	<b>7.5%</b>	14.7%	14.8%	<b>14.8%</b>
	Range	0.8%	1.1%	-	3.4%	3.5%	-
Male	1st → 2nd 50	7.6%	7.9%	<b>7.8%</b>	13.1%	12.5%	<b>12.8%</b>
	1st → 3rd 50	8.9%	9.4%	<b>9.2%</b>	14.0%	14.0%	<b>14.0%</b>
	1st → 4th 50	9.4%	11.0%	<b>10.2%</b>	16.5%	15.8%	<b>16.2%</b>
	Range	1.8%	3.1%	-	3.4%	3.3%	-