

SPEED RESERVE PRACTICAL PREPARATION FOR THE LONG SPRINTS

Before I Even Get Started

PJ Vazel, "Speed Reserve in the 400M"

Kevin Tyler, MEP 502 Presentation, Long Sprints Coaching Certification, Villanova University

Gary Winckler, Kebba Tolbert, Vince Anderson: Various Discussions Throughout My Coaching Career

Everything I know about this topic I have gleaned from discussions, readings, presentations, Q&A Sessions, phone conversations, and any other way I could aggravate more experienced or knowledgeable coaches to get the information I wanted to find or learn about

What is "Speed Reserve"

Speed Reserve = difference between the fastest time achieved on a distance shorter than 400m and the time taken to cover the same short distance during the 400m race—for example an athlete's 200m PB compared to their split at 200m during a 400m race – *PJ Vazel*



Practical Considerations

- Acceleration: START + FIRST 4-6 SEC.
- Max Velocity: 3 SECOND WINDOW
- Speed endurance: ENDURE SPEED
- Special endurance: ENERGY SYSTEM CONTRIBUTION

Acceleration and Max Velocity: Contributions

- Pushing speed parameters on the low end will increase mechanical efficiencies as the race distances increase
- 30m Acceleration and 60M Max Velocity improvements will allow a long sprinter greater opportunities in the front end of the races.
- Pay me now pay me later
- The 400 is a momentum-based sprint like all other sprints. Therefor developing early mechanical efficiencies in the first parts of the race makes getting to the first 200 much easier than if you have to "press" to get there.
- Ex: First 200m of 400m

Absolute Speed on 400m Performance (Women)

BLOCK 30m	4.35	4.30	4.25
FLY 30m	3.30	3.25	3.20
100m (Projected)	11.78	11.62	11.45
200m (Projected)	23.97	23.67	23.33
1 st 200m	25.17	24.87	24.53
2 nd 200m	27.17	26.87	26.53
400m (Projected)	52.34	51.74	51.06

Modified from G. Winckler



Speed Endurance

Ability to maintain Max Velocity

 Commonly seen as ability to "endure" speed gains or "CARRY" speed down the track in short sprint events

Specific Endurance

- Ability to maintain sub maximal speeds and reduce deceleration in latter stages of a race, specifically in the 400 meters.
- Commonly seen as ability to "CARRY" speed in the FINAL straightaway with maximal mechanics in the 400 meters.

Speed Reserve and Specific Endurance

- Interplay between the two
- Greater speed reserve allows the sprinter to run at a lower % of 200m max
- All things equal, running at lower intensity through first 200 to 300 should result in less deterioration throughout the straightaway (final 100m)
- Development of max velocity, speed reserve and specific endurance qualities will result in greater improvement

Speed Reserve and Pacing

- Discussion on Distribution and differences
 between "Speed" 400 and "Strength" 400
- Type of runner will make a difference in race tactics

Understanding Speed Reserve

- If speed reserve is the difference between 200m PR and 200M split in 400m Race, then...
- Race pace 95% of 200m PR
- Ex: 200m PR 20.4/First 200 split 21.4
- Speed Reserve 1.0 Seconds
- Ex: 200m PR 25.4/First 200 split 26.7
- Speed Reserve 1.3 Seconds

2009 World Championships 400m: Men: Analysis

August 15-23

berlin 2009

Biomechanical analysis

12. IAAF World Championships in Athletics Berlin, 15. - 23.08.2009

<u>400m Men</u>

	H	Round	RT	t _{400m}	t _{200m}	Diff.	t _{200-400m}	t _{300m}	t _{100m}	t ₁₀₀₋₂₀₀	t _{200-300m}	t _{300-400m}
Merritt LaShawn	USA	Fi	0,161	44,06	21,49	1,08	22,57	32,32	11,14	10,35	10,83	11,74
Wariner Jeremy	USA	Fi	0,162	44,60	21,41	1,78	23,19	32,34	10,98	10,43	10,93	12,26
Quow Renny	TRI	Fi	0,195	45,02	22,43	0,16	22,59	33,32	11,70	10,73	10,89	11,70
Henry Tabarie	ISV	Fi	0,162	45,42	21,83	1,76	23,59	33,17	11,18	10,65	11,34	12,25
Brown Chris	BAH	Fi	0,161	45,47	21,31	2,85	<mark>24,16</mark>	32,53	10,98	10,33	11,22	12,94
Gillick David	IRL	Fi	0,148	45,53	21,83	1,87	23,70	33,18	11,24	10,59	11,35	12,35
Bingham Michael	GBR	Fi	0,172	45,56	21,84	1,88	23,72	33,02	11,19	10,65	11,18	12,54
Djhone Leslie	FRA	Fi	0,151	45,90	22,04	1,82	23,86	33,46	11,34	10,70	11,42	12,44

Team Sprint/Hurdles: Rolf Graubner, Dr. Ralf Buckwitz, Mirko Landmann, Anja Starke

Merritt 200M PR 19.98s/ 1st 200M 21.49 Speed Reserve 1.51S



Scientific Research Project

19.98 20.19 20.61 20.71 20.56w

200m PR

http://www.fgs.uni-halle.de

20.75

21.20

20.67



	2013	WC 400	m Race	Splits		1st 200	- 200 pb	2nd 200	- 1st 200
Athlete	1st 200	2nd 200	1st 300	last 100	200 PB	sec	%	sec	%
LaShawn Merritt	21.20	22.50	31.80	11.90	19.98	1.22	93.89%	1.30	93.87%
Tony McQuay	21.70	22.80	32.80	11.70	20.6	1.10	94.66%	1.10	94.93%
Luguelin Santos	22.00	22.50	32.70	11.80	20.55	1.45	92.94%	0.50	97.73%
Jonathan Borlée	21.40	23.10	32.40	12.10	20.31	1.09	94.63%	1.70	92.06%
Pavel Maslák	21.80	23.10	32.90	12.00	20.49	1.31	93.61%	1.30	94.04%
Kirani James	21.30	23.70	31.90	13.10	20.41	0.89	95.64%	2.40	88.73%
Yousef Ahmed Masrahi	21.80	23.20	32.70	12.30	21.14	0.66	96.88%	1.40	93.58%
Anderson Henriques	21.50	23.50	32.70	12.30	21.02	0.48	97.72%	2.00	90.70%
Fastest	21.20	22.50	31.80	11.70	19.98	1.22	93.89%	1.30	93.87%
Slowest	22.00	23.70	32.90	13.10	21.14	0.86	95.93%	1.70	92.27%
Average	21.59	23.05	32.49	12.15	20.56	1.03	95.02%	1.46	93.23%
		courtesy SpeedEndurance.com							

400M Distribution Model

1st 200 = 95% of 200 PR

2nd 200 = 1.5-4.0 Seconds from 1st 200

Illustrations

200 PR=	25.4	
200 Split=	26.9	200PR+1.0
2nd 200 Split	30.9	1st 200 + 2
400 Top end	57.8	Performance Prediction
400 PR	55.78	
1st 200	26.69	1/2 400PR-1
2nd 200	28.69	1st 200+2
200 Low End	25.49	1st 200-1.2

IS THERE AN APPLICATION TO THE 800?

ABSOLUTELY

- BUT THE SAME THING APPLIES
 "SPEED" 800 VS "STRENGTH" 800
- SOME PEOPLE DIFFERENTIATE BETWEEN 400-800 OR 800-1500
- BUT THE FASTER 400 THE 800 RUNNER CAN MANAGE THEN THE FIRST 400 OF THE 800 HAS THE SAME SPEED RESERVE AFFECT

SHORT TO LONG OR LONG TO SHORT: TWO VIEWPOINTS

- WHAT DO THESE EVEN MEAN?
- CAN THEY BE BLENDED?
- WHAT IS THE OUTCOME?
- THE GREATEST DETERMINING FACTOR ARE SPEED-RELATED QUALITIES
- DUAL TRACK TRAINING

What does Dual Track Training Look Like

- Year-round emphasis on speed related qualities
- Acceleration/Max Velocity/Speed endurance grouping philosophy
- Special Endurance qualities trained as a means to an end.
- Winckler chart

Thank you for Coming Today...Coaches do make a difference

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