

400 METER TRAINING

“SO MANY INGREDIENTS, SO LITTLE TIME”

Ron Grigg

Jacksonville University

rgrigg@ju.edu

@Rongriggjr

@JUTracknField

Sprint Races-defined

An acceleration to a maximal race velocity, followed by an attempt to maintain the highest level of that velocity for the duration of the event.

400m Event Considerations

Sprint Training is dictated by duration and velocity of the event

Duration *45-65+ seconds*

Average Velocity *8.9 m/ps-6.15 m/ps*

Univ. of Western Australia, 2005

400m

Male 41% aerobic, 59% anaerobic;

Female 45% aerobic, 55% anaerobic

Dual Track Training

Creating a speed reserve

Creating race specific endurance

Speed Training Guidelines

95-100% intensity

<u>Category</u>	<u>Rest</u>	<u>Session Volume</u>
<i>Acceleration- 1-4 s</i> Ex. Block 10m, 20m, 30m	(rest 1 min. per 10 m)	300m-600m
<i>Maximum Velocity- 4-6s</i> Ex. Fly 10m, 20m, 30m (25m acc. Zone, 30m max)	(rest 1 min. per 10 m)	300m-600m

Anaerobic Speed Endurance Training Volume Guidelines

90-100% intensity

<u>Category</u>	<u>Rest</u>	<u>Session Volume</u>
<i>Short Speed Endurance- 6-10s</i>	1-3 & 3-10 min.	300m-800m
Ex. ASSE	6 x 80m w/ 8' rest	
Ex. GSSE	3 x 4 x 50m w/ 1:30 on reps, 5 min. on sets	
<i>Speed Endurance- 10-20s</i>	5-10 min.	500m-1000m
Ex.	5 x 150m w/ 10 min. rest	
<i>Special Endurance I- 20-40s</i>	10-15 min.	600m-1200m
Ex.	4 x 250m w/ 12 min. rest	
<i>Special End II- 40s-2:00</i>	15-20 min.	350m-1500m
Ex.	2 x 50 sec. boys/60sec. girls w/ 20 min. rest	

“Aerobic” Tempo Training Guidelines

<u>Category</u>	<u>Rest</u>	<u>Session Volume</u>
<i>Extensive Tempo</i> <i>70%-80% of pace</i>	30 to 90 seconds	1200-3000m

Ex. 10 x 150 @ 75% of 200m pace, w/ 50m walk in 1 minute

<u>Category</u>	<u>Rest</u>	<u>Session Volume</u>
<i>Intensive Tempo</i> <i>80%-90% of pace</i>	2-5 min.	800-2000m

Ex. 3-4 x 300 @ 85% of 400m goal pace w/ 4 min rest

Building a Better Athlete

MOBILITY

COORDINATION & SKILL

SPEED

STRENGTH

ENDURANCE

High School vs. College Reality

Colleges have a 40 week training window with significant influence on the other 12 weeks of the year.

High Schools have a 12-16 week training window with less influence on the other 36-40 weeks than they'd like to have.

Therefore, there is a need for a more rapid progression to specific training and racing and to get the most “bang for the buck.”

The many ingredients of the 400- meter event and athlete development should be combined where appropriate.

Building a Better 400m Athlete- Mobility

WARM UPS

WARM DOWNS

The WARMUP is TRAINING

MAXIMUM VELOCITY WARM UP

JOINT MOBILITY

head circles, hip circle, trunk circle, ankle and wrist circle

MOVEMENT EXERCISES

fwd skip with arm circles, backward skip w/arms, side slide & switch, karioka & switch, karioka step over & switch, alt low skip and scoop, groucho walks, backward run

DYNAMIC FLEXIBILITY

supine SL raises, iron cross, scorpions, groinners, inverted splits and scissors, rockers into hurdle seat stretch, hurdle seat change, lateral & linear leg swings

COORDINATION & SPECIFIC MOBILITY

A Skips

Ankle pops

straight leg shuffle into a straight leg bound

double alternate fast leg into technical buildup

Marching Run into technical buildup

ELASTIC STRENGTH & SPECIFIC COORDINATION(increase intensity of run, slow walk back)

10 prisoner squats + 50 meters

10 jumping Jacks + 50 meters

10 pogos + 50 meters

5 star jumps + 50 meters

3 rockets + 50 meters

Building a Better 400m Athlete- Coordination

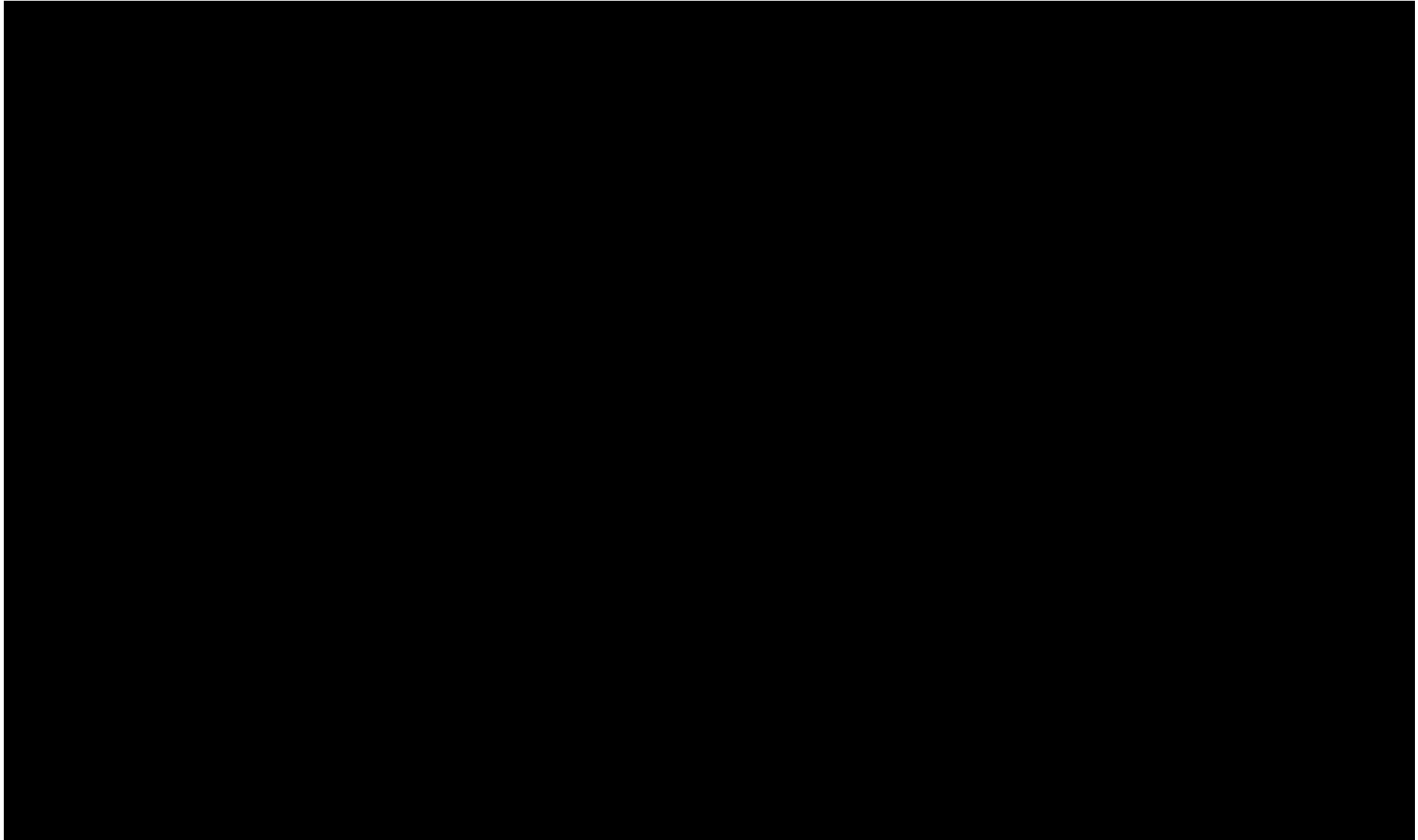
SPRINT MECHANICS

Wicket drill

Vince Anderson, Texas A&M

vanderson@athletics.tamu.edu

Wicket Drill



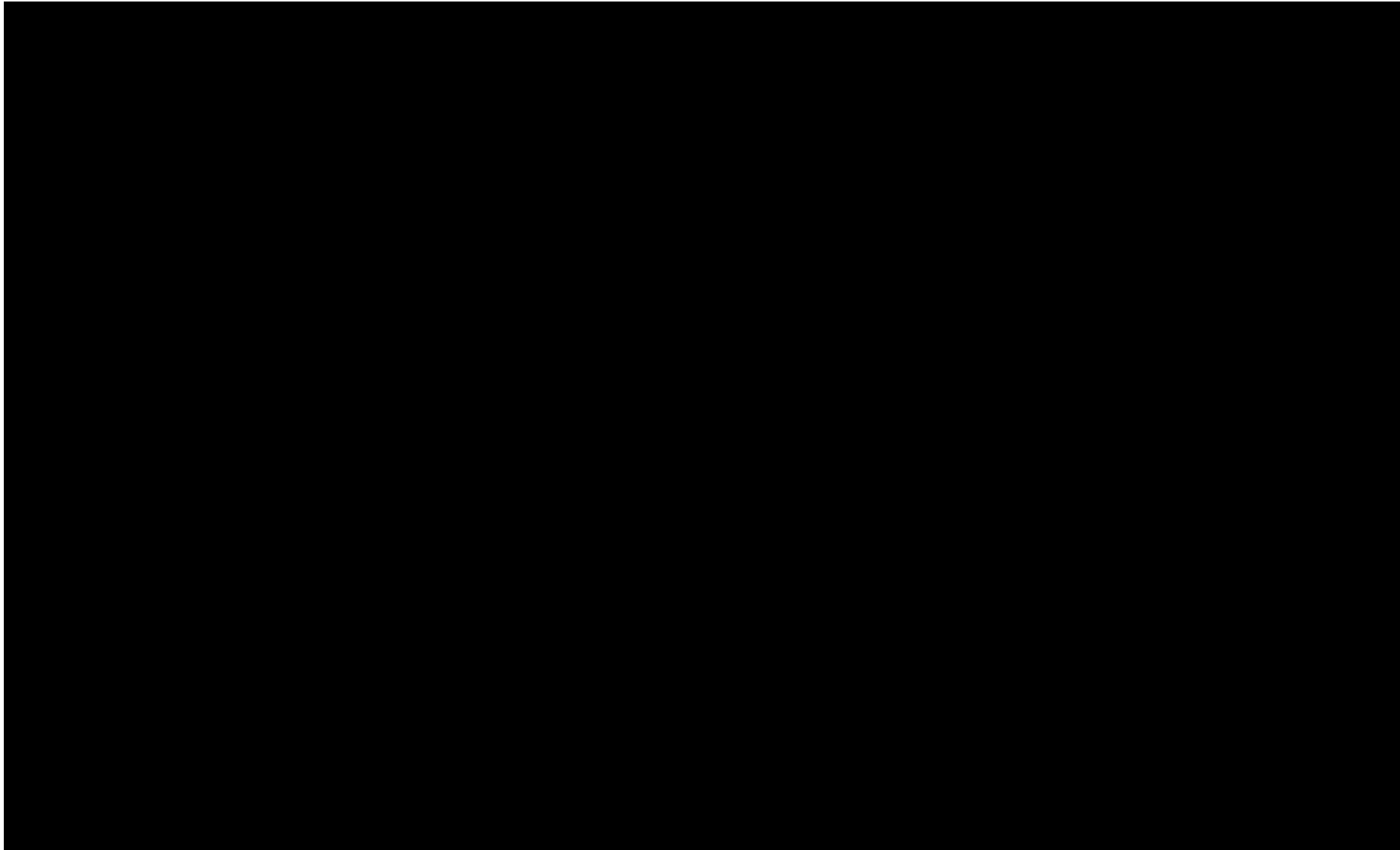
Wicket Drill- split position



Wicket Drill- knee to knee position



Building a Better 400m Athlete- Speed



Maximum Velocity Training Menu

(> 95%, < 6 sec same mechanical demand)

Session A:

- 2 X Fly-in 30 m (wind in your face)
- 2 X Fly-in 30 m assisted (wind at your back)
- 2 X Fly-in 30 m (on curve with minimal wind)

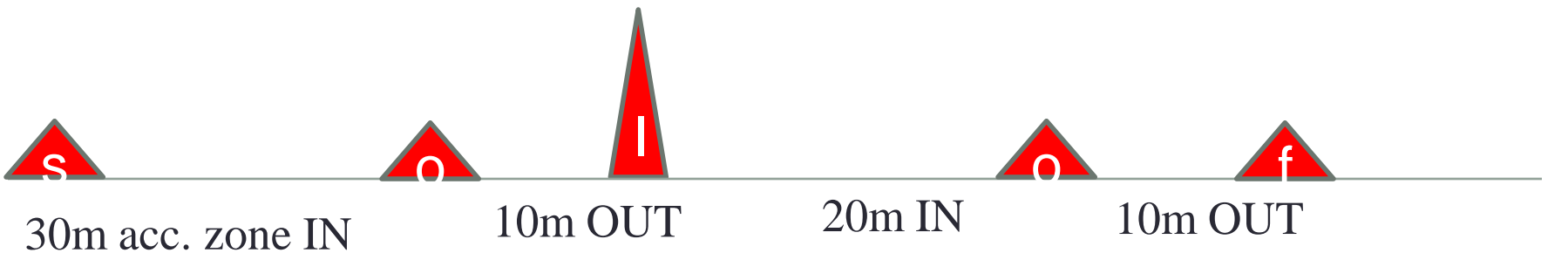
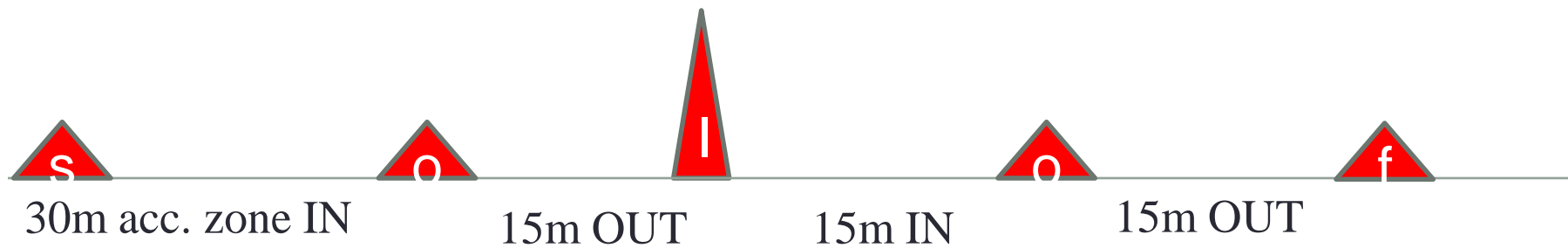
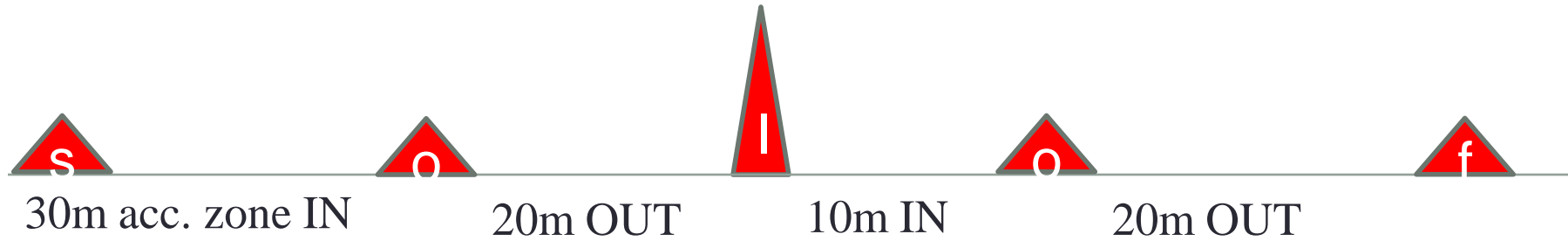
Session B:

- 2 X Stand Start 50 m as many steps as possible w/ proper mechanics (timed and count)
- 2 X Stand Start 50 m as few steps as possible w/ proper mechanics (timed and count)
- 2 X Stand Start 50 m normal cadence w/ proper mechanics (timed and count)

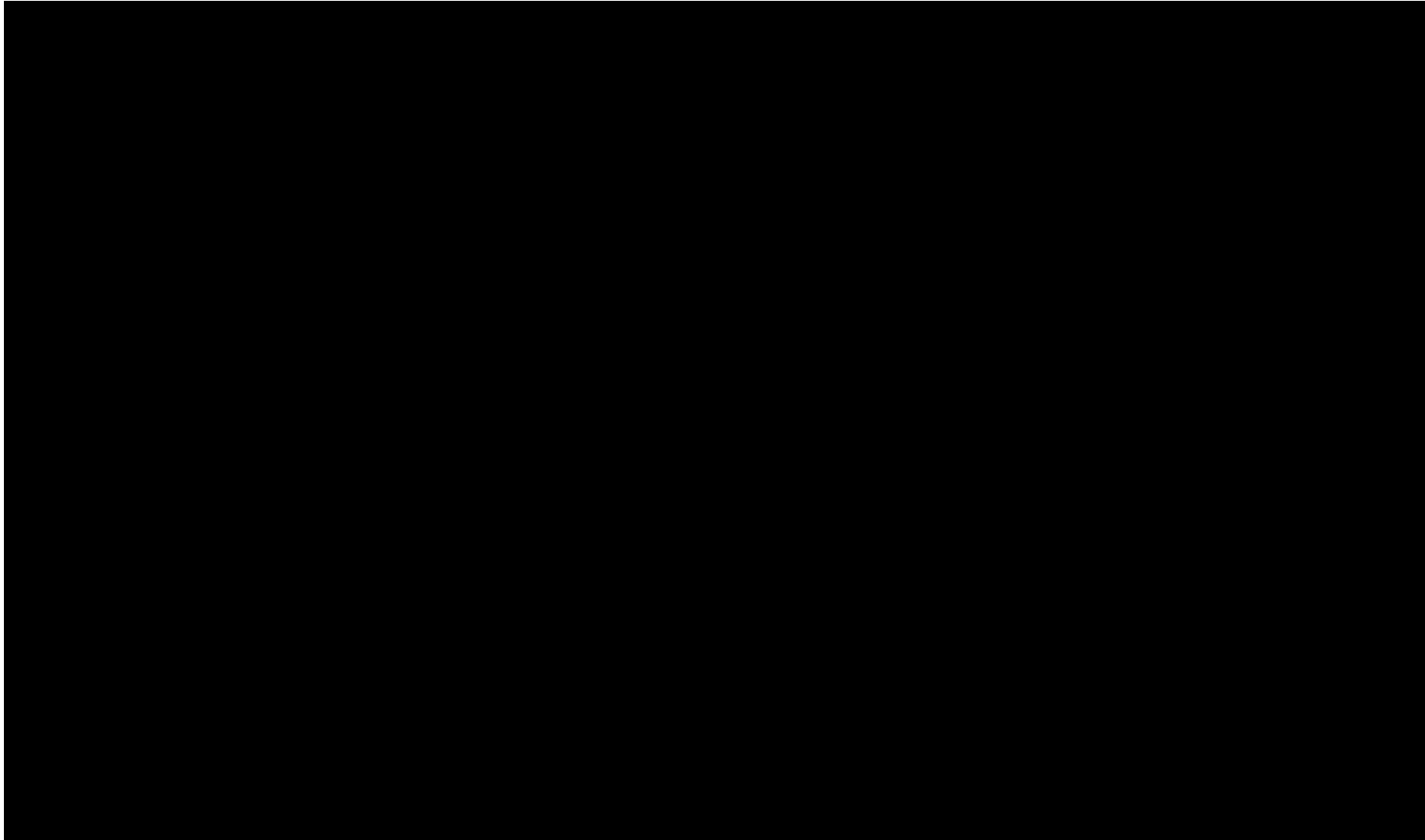
Session C:

Sets of "Ins and Outs"

INS & OUTS TRAINING COURSE



Ins & Outs



Building a Better 400m Athlete- Strength

- GENERAL STRENGTH -
 - Body weight
- ABSOLUTE STRENGTH-
 - Weight room
 - www.sacspeed.com
 - Boo Schexnayder providing videos and articles
 - “Exercises for Sports Performance Training”
 - “Weight Training for Speed Power and Sports Performance”
- POWER and/or ELASTIC STRENGTH
 - coordination + speed + strength

Multiple Jumps

In Place Jump Series

Pogo Jump Rope

Tuck Jumps

Rocket Jumps

Short Jump Series(into pit)

SLJ

STJ

3 double leg hops

Bound Series 1

LLR

RRL

RRLL

Multiple Throws

B

Over Head Back

Under Hand Forward

Squat Chest Throw

Lunge Chest Throw

C

Hop Forward + Over Head Back

Hop Forward + Under Hand Forward

Hop Off Box Backwards + OHB

Hop Off Box Forwards + UHF

2 Hops + Chest

Anaerobic Training Guidelines

90-100% intensity

<u>Category</u>		<u>Session Volume</u>
<i>In Place Jumps</i>		50-200 takeoffs
<i>Short Jumps</i>	(4 or fewer contacts)	20-40 takeoffs
<i>Meso-Power Jumps</i>	(bounding)	50-150 takeoffs
<i>Multiple Throws</i>		20-50 throws

400m Multi-system Menu- Gen. Prep.

"Jump Run" Circuits

10-20 sec. In Place Jump 50-40 sec. rest

4 x Drill 15 sec. on, 15 sec.

1 min. run 2 min rest (3-6 rounds)

Completion Runs

Extensive or Intensive Tempo reps +50 m fast within 30 seconds

Sprint Float Sprint Runs

30m fast, 30 m float, 30m fast

400m Multi-system Menu- Spec. Prep.

200, 400, 600 “The Hard Way”

5-10 x 40, 50 or 60 with short recovery in 5 person shuttle relay fashion

5-10 min. rest on sets

Depletion Runs

Special Endurance rep + a set of “SSE”

ex. 250, 1:00 rest, 4 x 50m, 1:00 rest

Split Runs

ex. Critical Zone 3 x 160 w/ 20 sec rest

ex. 350, 1:30 rest, 250

ex. 3 x 200 w/ 1:00 rest

400m Multi-system Menu- Comp.

“Combo Session”

4 x 30m w/ 90 sec. rest

5 x 150 w/ 90 sec. rest (1st 100 @ 800 feel, last 50 fast)

8 min. rest

1 x 300 max.

“MD Mixed Reps”

3 x 800 @ 10k pace (PR+40-50s)w/ 200 jog recovery

3 x 300 @ 800 pace w/ 300m jog recovery

3 x 150 @ 400 pace w/ 200m jog, 50m walk recovery

MEET DAYS AS TRAINING

Speed/Speed Endurance Theme

4 x 100, 100m, 200m

Special Endurance/Race Model Theme

400, 200, 4 x 400

Experiment in minor meets

“go out a little harder”

“go out a little easier”

Building a Better 400m Athlete Race Model

1st 200 = 200m PR + 1.5 seconds

2nd 200 = 1st 200 + 2.0 seconds

Ex. 23.0 200m pr- boy

24.5

26.5

51.0

Ex. 27.0 200m pr- girl

28.5

30.5

59.0

Tempo Sessions prescribed w/ pace per 100 meter for effort distribution/pace awareness. We want “Mature and intelligent training efforts.”

Pace Per 100 meter training chart									
400 goal	avg. mps	70%	75%	80%	85%	90%	95%	100%	
60	6.67	21.4	20.0	18.8	17.6	16.7	15.8	15.0	
59	6.78	21.1	19.7	18.4	17.4	16.4	15.5	14.8	
58	6.90	20.7	19.3	18.1	17.1	16.1	15.3	14.5	
57	7.02	20.4	19.0	17.8	16.8	15.8	15.0	14.3	
56	7.14	20.0	18.7	17.5	16.5	15.6	14.7	14.0	
55	7.27	19.6	18.3	17.2	16.2	15.3	14.5	13.8	
54	7.41	19.3	18.0	16.9	15.9	15.0	14.2	13.5	
53	7.55	18.9	17.7	16.6	15.6	14.7	13.9	13.3	
52	7.69	18.6	17.3	16.3	15.3	14.4	13.7	13.0	
51	7.84	18.2	17.0	15.9	15.0	14.2	13.4	12.8	
50	8.00	17.9	16.7	15.6	14.7	13.9	13.2	12.5	
49	8.16	17.5	16.3	15.3	14.4	13.6	12.9	12.3	
48	8.33	17.1	16.0	15.0	14.1	13.3	12.6	12.0	
47	8.51	16.8	15.7	14.7	13.8	13.1	12.4	11.8	
46	8.70	16.4	15.3	14.4	13.5	12.8	12.1	11.5	
45	8.89	16.1	15.0	14.1	13.2	12.5	11.8	11.3	
44	9.09	15.7	14.7	13.8	12.9	12.2	11.6	11.0	

400 meters	6 Day Model - General Phase No Meets				
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
speed	tempo-volume	general	tempo-pace	speed technical	combination
(1) Acceleration WU	(1) Tempo WU	(1) General WU	(1) Warm Up A	(1) Max V WU	(1) Balance Mobility
(2) Multi Jumps	(2) Extensive Tempo 75% 6 x 300 w/ 2'	(2) General Strength	(2) Intensive Tempo 80% 200s +50 Compl. Runs	(2) Wicket Drills	(2) Jump Run A 4-rounds
(3) 4 x 100m hand offs	(3) Hurdle Mobility	(3) BFCD/SS	(3) Hurdle Mobility	(3) 4 x 100 hand offs or blocks acc	(3) Abs and Pushups
(4) Ins & Outs 30-20o-10i-20o	(4) BFCD/SS	(4) Weight Room	(4) BFCD/SS	(4) Multiple Throws	(4) BFCD/SS
(5) Multiple Throws				(5) BFCD/SS	
(6) BFCD/SS				(6) Weight Room	
(7) Weight Room					

400 meters	6 Day Model - Specific Phase 2 meets				
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
speed	Dual Meet- Speed, Speed End. Theme	general	tempo-volume	speed technical	Invitational- w/ specific race model cues
(1) Acceleration WU	(1) 4x100	(1) General WU	(1) Warm Up A	(1) Max V WU	(1) 400m
(2) 4 x 100m hand offs	(2) 100m	(2) General Strength	Extensive Tempo (2) 75% 3 x 5 x 150 w/ 1', 5'	(2) Wicket Drills	(2) 4x400m
(3) Multiple Jumps	(3) 200m	(3) BFCD/SS	(3) Hurdle Mobility	(4) Multiple Throws	
(4) BFCD/SS	(4) BFCD/SS	(4) Weight Room	(4) BFCD/SS	(5) BFCD/SS	
(5) Weight Room				(6) Weight Room	

400 meters		6 Day Model - Specific Phase 1 Meet			
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Speed/SE	general	Spec. End- RM	general (light)	speed technical	Invitational
(1) Acceleration WU	(1) General WU	(1) 30M WU	(1) DYNAMIC WU	(1) Max V WU	(1) 4 x 100 relay
(2) Multi Jumps	(2) General Strength w/ xt runs	(2) Split Runs- CZ 2 x 3 x 160 / 20", 15' (small differentials)	(2) Squat Walk Series	(2) Wicket Drills	(2) 400m
(3) 4 x 100m hand offs	(3) BFCD/SS	(3) Hurdle Mobility	(3) BFCD/SS	(3) 4 x 100 hand offs or blocks acc	(3) 4 x 400 relay
(4) GSSE 3 x 4 x50m w/90 sec. rest.		(4) BFCD/SS		(4) Multiple Throws	(4) BFCD/SS
(5) Multiple Throws		(5) Weight Room		(5) BFCD/SS	
(6) BFCD/SS					
(7) Weight Room					

400 meters	6 Day Model - Competition Phase 1 Meet				
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Active Recovery	speed	combo session	Active Recovery	speed technical	Regionals
(1) DYNAMIC WU	(1) Acceleration WU	(1) Tempo WU	(1) Balance Mobility WU	(1) Max V WU	(1) 4 x 100m
(2) Squat Walk Series	(2) Multiple Jumps	(2) Combo Session 4x30, 5x150, 1x300 (10 days from State meet)	(2) Hurdle Mobility	(2) Wicket Drills	(2) 400m
(3) BFCD	(3) 4 x 100 handoffs or S-F-S	(3) BFCD/SS	(3) Squat Walk Series	(3) 4 x 100 hand offs or blocks acc	(3) 4 x 400m
(4) Weight Room	(4) BFCD/SS	(4) Weight Room	(4) BFCD/SS	(4) Multiple Throws	(4) BFCD/SS
				(5) BFCD/SS	
				(6) Weight Room	

Resources

www.completetrackandfield.com

- Realistic perspective on training HS track events
- @Latif_Thomas

www.elitetrack.com

- Articles, blogs and message board
- @MikeYoung