



Middle Distance Training: Creating a Multi-Dimensional Athlete

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NCA Winter Track & Field Coaches Clinic

Personal Background & Our Program



My Running/Coaching Background

- Lincoln Southwest High School (2006-10)
 - NE State XC Champ ('08)
 - 2nd, 3rd, 4th, and 8th in events @ State Track (2009 & 2010)
- UNL (2010-11) & NWU (2011-14)
 - Mile – 4:12
 - Suffered Plantar Fascia Rupture & Partial Achilles Tear during Fall 2012
- Coaching XC & Track – Mid-Distance Events @ LSW ('13-Present)
 - 54 Total State Track & Field Medals Earned
 - 135 Team Points compiled (≈34 points/year)
 - 2 Girls All-Class Gold 4x8 Relay Champs ('16 & '17)



Our Program at LSW

- Combined Boys & Girls Program (XC & Track)
 - Around 1400 students (15th Largest in Class A)
- Girls Team State Champions – XC ('13) , Track ('14, '15)
- Boys Team State Runners-Up – XC ('17)
- Since 2013, Girls & Boys Track/XC have combined for:
 - 7 District Championships
 - 7 Conference & 13 City Championships
 - Won 50% of all Championship Meets competed in

Our Program at LSW

- Program Goals:
 - Be Great Student-Athletes
 - Get Better Each Day
 - Win Championships
- Full team meeting @ 3:30pm (5-10min)
- Team dynamic warm-up (10-15min)
 - Form Walk, High Knees, A-Skip, B-Skip, etc.
 - Strides
 - Break up into event groups



Past/Current Athlete Profiles

- Taylor Els (Northern Colorado – Vball)
- Hannah Wolkenhauer (Queens College)
 - 2017 All-American in XC (DII)
 - 5K – 17:11
- Alex Schwartz (Signed to IUPUI)
 - 800 – 2:17.43
 - 1600 – 5:07 (5th @ State)
 - 3200 – 11:31 (11th @ State)
- Katie Hastings (UNK)
- Carson Fischer (Signed to UNL – Softball)
 - 400 – 59.08
 - 800 – 2:16.25 (4th @ State)
- Danielle Rinn (Signed to Wichita St)
 - 800 – 2:19.41
 - 1600 – 5:03 (3rd @ State)
 - 3200 – 11:08 (3rd @ State)

Principles of My Coaching Philosophy

- Athletes need a combination of CONSISTENCY and VARIABILITY
- Without VARIABILITY or progression of workouts, training will become stale and improvements will plateau
- Athletes should be doing the following things year round:
 - Lifting, Core, Hip Drills, and Strides
- Each week should be planned out to the day and activity
 - What are we doing?
 - How long are we doing it for?
 - Why are we doing it?
 - Explaining this to athlete creates a mutual understanding and layer of trust in the process

Examples of Consistency

Daily Schedule Week Seven- Training Schedule (1/8-1/14)

Mon – Long Run @ Jamaica Trail down 14th St
- Lifting - Day 1

Tue – Recovery Run @ TBD
- Hip Drills before run
- 4-6 Strides (75m) after run on track

Wed – Medium Run + Hill Strides @ Densmore/Mockingbird
- EVERYONE: 4min Abs + Planks before lifting
- Lifting - Day 2

Thur – Recovery Run @ TBD
- Hip Drills before run

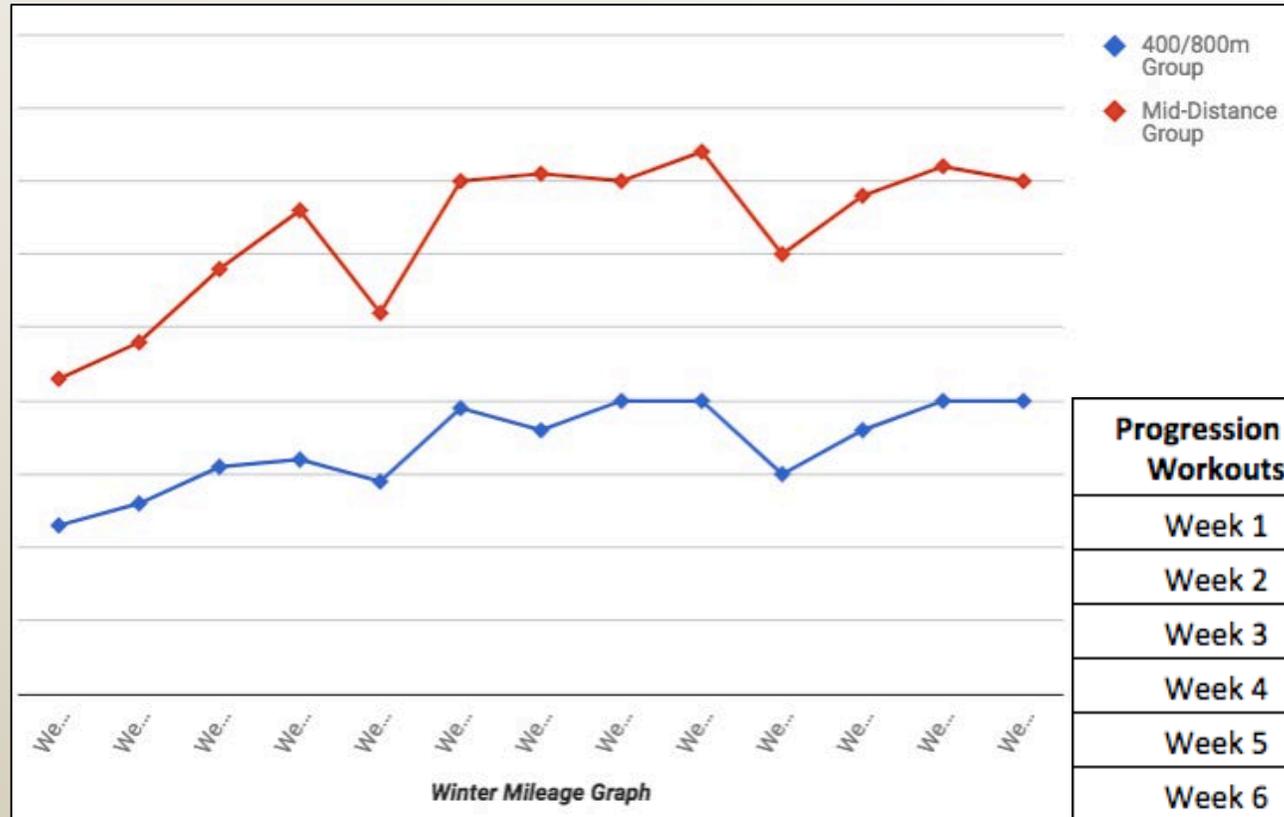
Fri – Tempo @ Jamaica or Rock Island *Snow Permitting*
- 5min Warm-Up, 2x12min + 4min @ Tempo, 5min Cool-Down
- 4min Abs + Planks before lifting

Sat – Easy Run

LSW Track – Mid Distance Training Group Week Seven- Training Schedule (1/8-1/14)

	TYPE OF RUN	SUPPLEMENTAL ACTIVITY	BOYS A	BOYS B	GIRLS A	GIRLS B
MON	Long Run	Lift	60min	50min	60min	50min
TUE	Recovery	Strides + Hip Drills	30min	20min	30min	20min
WED	Medium + Hills	Lift + Abs	30min + Hills	20min + Hills	30min + Hills	20min + Hills
THUR	Recovery	Hip Drills	35min	30min	35min	30min
FRI	Tempo	Lift + Abs-	2x12 + 4min @ Tempo	2x10min @ Tempo	2x12 + 4min @ Tempo	2x10min @ Tempo
SAT	Easy/Medium	-	40min	OFF	40min	OFF
SUN	OFF	-	OFF	OFF	OFF	OFF

Examples of Variability



Progression of Workouts	Long Run	Workout #1	Workout #2
Week 1	40min		
Week 2	45min		3x7min @ Tempo
Week 3	50min		3x8min @ Tempo
Week 4	55min		2x10 + 5min @ Tempo
Week 5	50min		-
Week 6	55min		2x12 + 4min @ Tempo
Week 7	60min		15 + 10min @ Tempo
Week 8	65min		-
Week 9	65min		2x13min @ Tempo
Week 10	60min		18 + 7min @ Tempo

Principles of My Coaching Philosophy

- Athletes are not forced to count mileage. (Minutes > Mileage)
 - This allows athletes to focus more on intrinsic and physical cues of fitness while also managing injuries for all athletes
 - In a mileage based system @ 30miles/week, female athletes will spend an average of 30 more minutes of time on their feet compared to their male counterparts per week. This accounts for an increase of up to 400 minutes of activity by the end of a winter base training period.
- Watches should be used for feedback and an effort should be made to challenge athletes to increase their own physical awareness of their bodies and the effects of stimuli on their body systems
- Even with the best training plan and intentions, never hesitate to listen to your athletes and alter training based on their feedback



Defining "Mid-Distance" & Training/Racing Implications

What is “Mid-Distance”?

- What do you classify as mid-distance running for High School? College?
 - Most would argue the 800-1600m are Mid-Distance races
 - This definition is slightly outdated and not based on current research/understanding of the physical demands and energy systems used
- 800m is more closely aligned with 400m race in terms of how athletes maximize aerobic and anaerobic energy.
- 1600m is more closely aligned with 3,000-5,000m
- Strategies
 - 400/800m – Maintain as high of velocity as possible before exhaustion
 - 1600m – Stave off exhaustion by extending the time necessary before dipping into anaerobic energy

Accumulated O² Deficit Model – Spencer/Gastin

Event	Energy Distribution	
	Anaerobic	Aerobic
400m	57%	43%
800m	34%	66%
1500m	16%	84%
5000m	12%	88%

800m Pacing Strategy

- The 800m is an extended sprint!
- It is best run as a decelerated effort
 - Only 2 out of 22 World Record performances have been run as negative splits
- Elite Men 800m
 - Wilson Kipketer - +5% Differential (49.3 + 51.8 = 1:41.1)
 - Joaquim Cruz - +4% Differential (49.7 + 52.0 = 1:41.7)
 - Seb Coe - +4% Differential (49.7 + 52.0 = 1:41.7)
 - David Rudisha - +5% Differential (49.28 + 51.63 = 1:40.91)

2012 Men's Olympic 800m Final

Figure 4: Average 200m split, approximate first 200m split and approximate 1st to 2nd lap deceleration during the 2012 Men's Olympic 800m final.

Athlete	Average 200m split	1 st 200m split	1 st -2 nd lap deceleration
Rudisha	25.23	23.18	2.75
Amos	25.36	23.66	2.58
Kitum	25.63	23.85	2.77
Solomon	25.71	23.52	3.34
Symmonds	25.74	24.59	2.41
Amman	25.8	23.52	4.53
Kaki	25.83	23.34	4.7
Osagle	25.94	24.18	3.7

800m Pacing Strategy

- Ideal Pacing

- This is what workouts should be targeted towards and based on
- Use “Goal Time” and work backwards

Section	% of Race Pace
0-200m	104.50%
200-400m	99.25%
400-600m	98.50%
600-800m	97.75%

Female (2:16)	Time
0-200m	32.5
200-400m	34.3
400-600m	34.5
600-800m	34.7

Male (1:56)	Time
0-200m	27.8
200-400m	29.2
400-600m	29.4
600-800m	29.6

2012 Men's Olympic 800m Final



The Science: Energy Systems

- Creatine Phosphate (CP)

- Quickest, Most Powerful, but Least Capacity
- 12-24 seconds of duration (First 100m-200m)
- Propel to maximum speed



Flying 60s → 100m → 150m → 200m
@ 105-110% 800m Pace

- Lactic System

- Available after CP System is Finished
- 2nd Most Powerful, Less Speed, Greater Capacity



5x300m. 98-102% 800m Pace w/
maximum recovery.

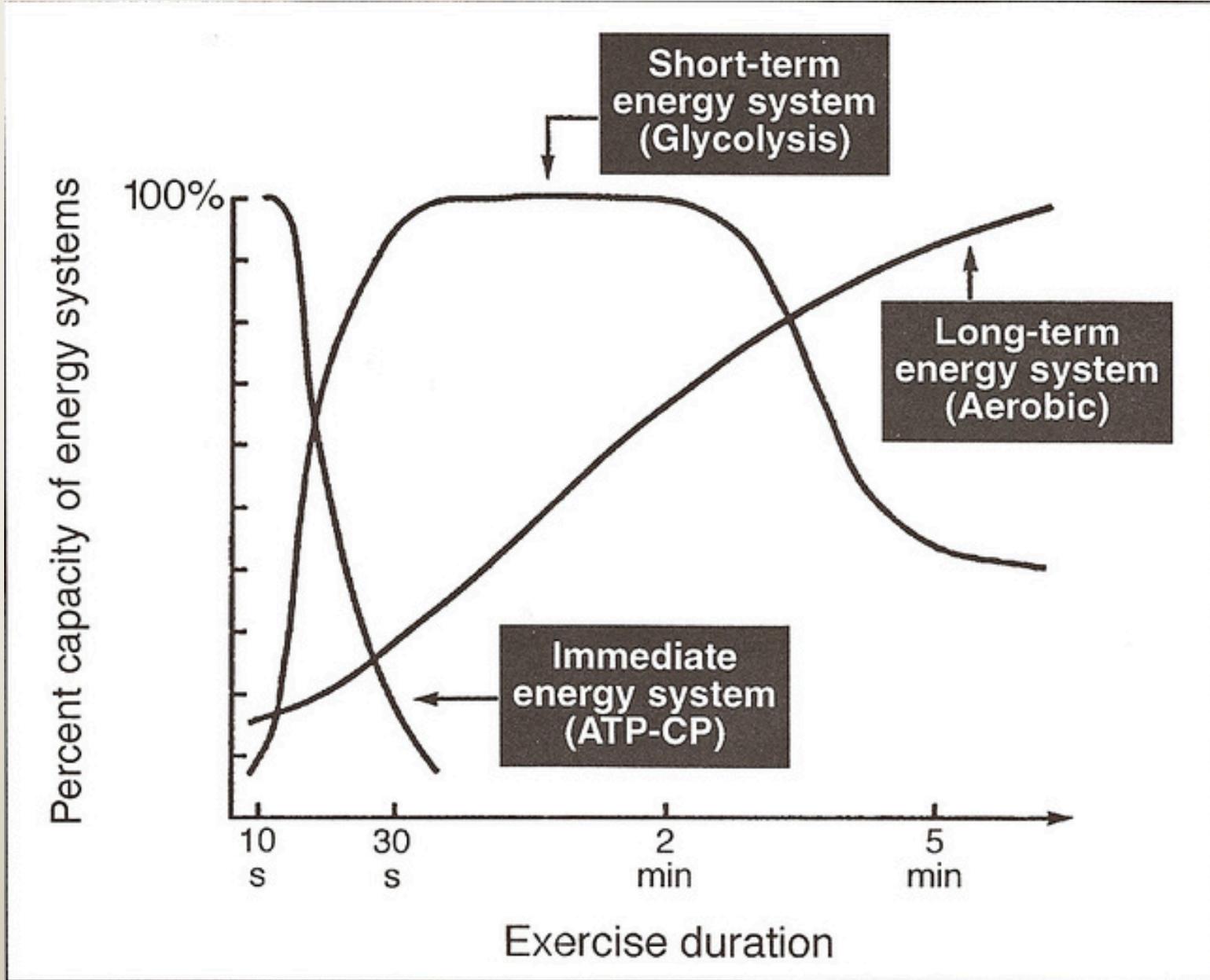
- Aerobic System

- “Support System” – Props up Lactic System periodically
- Greater Aerobic System = Faster Pace Sustainability



2-3 x 6-10min @ Tempo or
Lactate Threshold Pace

The Science: Energy Systems



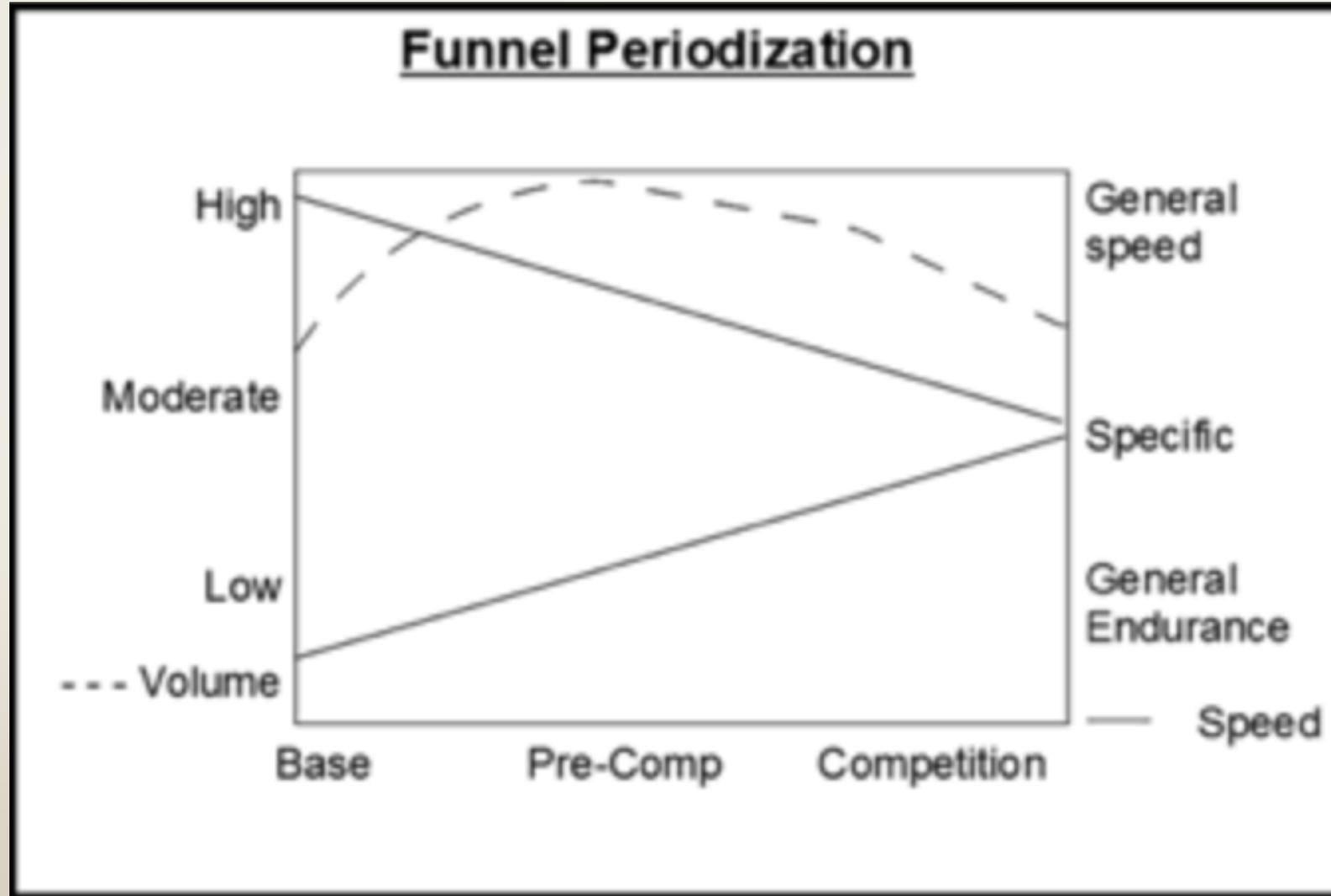
What does this mean for 800m vs. 1600m Training?

- We need to coach 800m athletes differently than 1600m athletes.
- **800m Athletes** - “Speed” development early and often but not at the expense of lactate processing and aerobic work.
- Athletes should attack race early and execute a race plan
 - Attack first 200m, Float 200-600m, Finish (Slow Deceleration)
 - This must be practiced and planned out! We can't expect most athletes to do something we haven't taught them.
- **1600m Athletes**
 - Last Lap Speed > First Lap Speed
 - Training – Speed Endurance > Pure Speed
 - How long can you get your athlete to run a given speed comfortably?

Periodization & Variation of Training



Periodization of Training



Renato Canova
The Science of Running

Periodization of Training – Winter Base (Base II)

- Following XC, athletes take a 2-week break
- Begins – Last week in November and runs up until first week of Track practice
- Run 5-6 times/week
- Lift 3 times/week
- Target
 - Build aerobic base
 - Improve pure “speed”
 - Improve muscular strength and mobility

Periodization of Training – Winter Base (Base II)

- Building the Aerobic Base
 - Weekly Long Runs (> 50min)
 - Easy/Recovery Days
 - Tempo/Threshold Runs
 - Allows body to better efficiently handle faster paces and produce sufficient energy (ATP) through Aerobic System (Krebs Cycle and ETC). Can benefit Lactic Energy System with specific tailoring (i.e.. Faster Paces)
- Improve "Pure Speed"
 - Lifting (Cleans, Box Jumps, etc.)
 - Focus on "Explosive" lifts
 - Plyometric and "Max Velocity" type workouts
- Muscular Strength & Mobility
 - Lifting, Single Leg Lifts/Drills, Core, Hip-Drills

Periodization of Training – Winter Base (Base II)

- Even though the primary goals are centered around developing the aerobic base, do not be afraid to mix in some alternative workouts to avoid stagnation
- Examples of workouts:
 - 60min Long Run (30-35min for pure 400/800 Athletes)
 - 3 x 7min @ Tempo Pace
 - 2 x (4 x 200m ON/OFF @ 800-1600m Pace)
 - 20min Progressive Run, 2 x (5 x 30sec Hill Repeats), 5min Warm-Down
 - Fartlek Run –5min Warm-Up, 4-6 x 2min ON – 3min OFF, 5min Warm-Down

Periodization of Training – Pre-Comp Phase (4 weeks)

- 1st 4-week cycle of Track Season
- Major Focus: Phasing out of Threshold Workouts, Introduction of VO²Max Workouts & Shorter Speed Reps to Finish Workouts
- Include a Long Run especially for higher mileage, older, or more aerobically inclined athletes
- Continue or begin speed development via Strides, Quick Finishing Reps, etc.
- Examples of workouts:
 - 2 x 1000m w/ 3min Jogging Rest, 2 x 500m w/ 2min Jogging Rest
 - 600m Time Trial + 3 x 300m + 3 x 150m
 - 3 x 8min @ Threshold Pace + 4 x 200m @ 800m Pace

Periodization of Training – Competition Phase (4 weeks)

- 2nd 4-week cycle of Track Season
- Major Focus: VO2Max/Race Pace Intervals & Race Specific Speed Work
- Long runs become less critical and should begin being replaced during this cycle
- Primary goal of workouts is to begin building confidence and giving athletes permission to experiment
- Examples of workouts:
 - 1200m, 1000m @ 2-Mile Pace + 800m, 600m @ Mile Pace + 400, 200m @ 800 Pace
 - 200-300-400-300-200-200 @ 800m Race Pace
 - 4 x 800m @ Mile Pace + 4 x 200m @ Finishing Kick

Periodization of Training – Championship Phase (4 weeks)

- 3rd 4-week cycle of Track Season
- Major Focus: Sharpening via Speed, Goal Pace Intervals, Increased Recovery
- Rest between reps should be increasing and focus should shift towards quality over quantity
- Examples of Workouts:
 - 2 x 300m + 4 x 200m @ Sub Race Pace *Sharpening Speed Work*
 - 6-8 x 400m @ Goal Mile Pace w/ 1-2min Rest + 2 x 150m Finishing Kicks
 - 2 x 600m @ Goal 800m Pace + 2-4 x 150m Finishing Kicks



"The Taper"

Perfecting the “Taper”

- Main Goals
 - Optimize Muscle Tension (“Spring” in your step)
 - Shorter Races = Higher Tension
 - Longer Races = Lower Tension
 - Quick Sprints = Increase Tension, Slow Run = Decrease Tension, Race Pace = Maintain
 - Reduce Residual Fatigue or Increase Muscle Recovery
 - “The hay is already in the barn” – Dr. Ted Larson
 - Minimize Stress or Increase Mental Freshness
 - Visualization
 - Maintain Usual Routine/Rhythm of Training
 - Our bodies desire routine and normality.

Perfecting the “Taper”

- Additional Thoughts:
 - Prioritize Sleep!
 - Focus on the feel more than what the watch is telling you
 - I don't condone “lying”, but sometimes it's important to tell an athlete what they “need” to hear
 - Maintain Usual Routine/Rhythm of Training
 - Our bodies desire routine and normality.
 - Don't Over-Taper

Importance of Variation in Training

- 800/1600m athletes are required to have exceptional speed, endurance, and lactate processing.
- “Energy systems do not work in an exclusively sequential fashion. Instead, coaches should perceive the aerobic and anaerobic energy systems as working throughout the whole race in an overlapping fashion.” – Michael Cox
- Variable Components of Training
 - Duration/Distance (1min vs. 2min or 400m vs. 600m reps)
 - Recovery (Standing Rest, Jogging, 2min or 3min?)
 - Speed/Intensity (Tempo Pace, Race Pace, Sub-Race Pace?)

Importance of Variation in Training

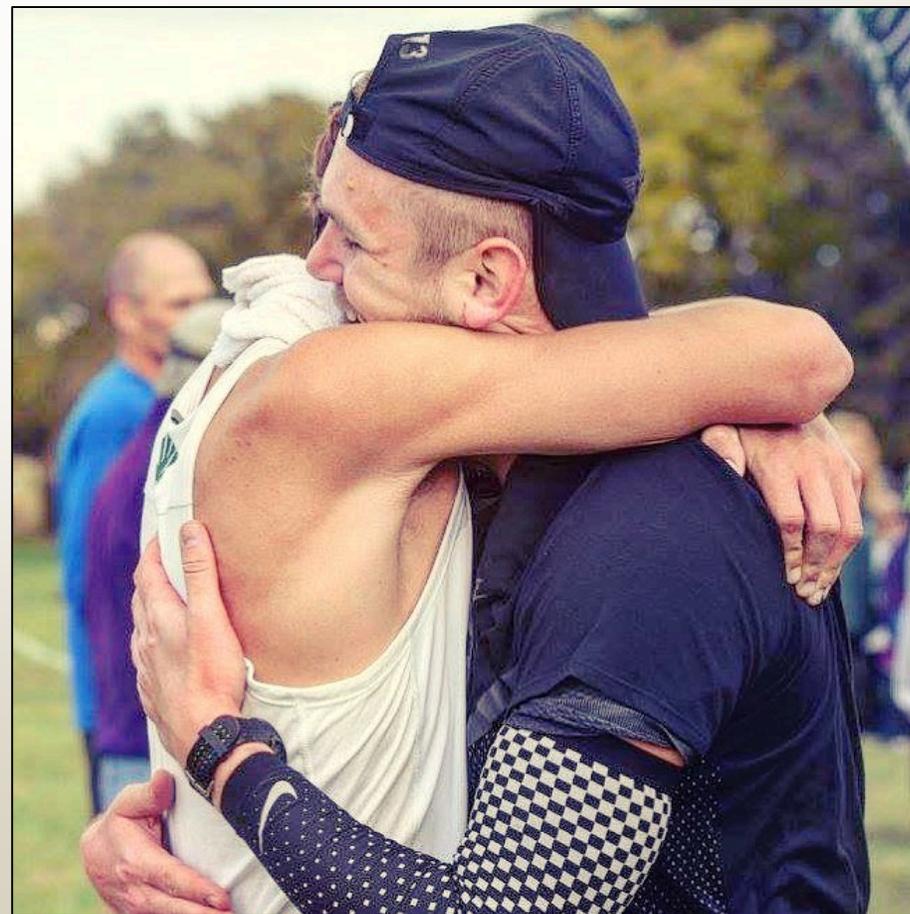
- It's important that we don't overdue variation to the point of chaos
- Variation does not mean abandoning workouts that “work” or that athletes respond to
- Application:
 - Scaffolding workouts earlier in the year and building towards mastery
 - 3 x 7min @ Tempo → 21min @ Tempo
 - 8x400m @ 64sec → 5x600 @ 1:36
 - Stimulation of multiple energy systems per week or even hybrid workouts combining them together
 - Builds fitness and confidence in athletes simultaneously
 - Fast Twitch and Slow Twitch athletes receive chance to capitalize on their natural advantages and feel successful

Sports Psychology



Sports Psychology

- In my opinion, one of the most undertrained and utilized areas of sport
- Areas of Focus
 - Positive Self-Talk
 - Goal Setting
 - Visualization
 - Self-Reflection & Reading
 - Small Group Talks



Sports Psychology: Positive Self-Talk

- Short, specific, and simple
- Present tense
- Must be repeated daily (especially leading up to and during practice)
- Four Categories
 - Calming/Relaxing – “Take a deep breath”
 - Instructional – “Bend your knees”
 - Motivational – “Yes! Come on, let’s go!”
 - Focus – “Don’t think about anything. Just concentrate”

Negative Self-Talk	Positive Thinking
I’ve never done it before	It’s an opportunity to learn something
It’s too complicated	I’ll tackle it from a different angle
I’m too lazy to get this done	I wasn’t able to fit it into my schedule, but I can reexamine some priorities
There’s no way it will work	I can try to make it work
It’s too radical a change	Let’s take a chance
No one bothers to communicate with me	I’ll see if I can open the channels of communication
I’m not going to get any better at this	I’ll give it another try

Sports Psychology: Goal Setting

- Start big and work backwards
 - Finals? → Prelims? → Warm-Up? → Tonight's Sleep? → Today's Training?
- Focus on what YOU can do and control. BE SPECIFIC
- Positive framing rather than negative
- Write them down where you will see it daily when it matters
- Share them with people around you
- Use these to drive your visualization sessions
- Be prepared to adjust as needed, especially when you reach them!

Sports Psychology: Goal Setting

Goals must be SMART:

- S – Specific & Significant
- M – Measureable & Meaningful
- A – Attainable & Action-Oriented
- R – Relevant
- T – Time-bound & Trackable



Sports Psychology: Visualization

- 10-15min sessions, prior to workout or race, without potential distractions
- Sit or recline with eyes closed
- Deep and relaxed breathing
 - In a relaxed state, Central Nervous System (CNS) is more receptive to images and suggestions created by the mind
- Remain positive, realistic, and detailed while walking through a step by step plan of how you want your race/day to go.
- Positive, personal, present, and detailed!

Sports Psychology: Visualization

- Keys to Success
 - Know exactly what you want to accomplish before you start (Goal Setting)
 - Experience emotions and feelings as you go through it
 - Don't force it
 - Continually practice and adapt (This skill doesn't come easy!)
- A difference of opinion:
 - Most sports psychologists and literature I've encountered state that in order to visualize, your sessions must be solely focused on the perfect outcome
 - However, I've found it useful (especially with athletes who struggle with performance anxiety), to have them visualize potential difficulties and walk through solutions with desirable outcomes

Sports Psychology: Self-Reflection and Reading

End of Season Reading Assignment

- Your job will be to find 15-30min uninterrupted each day/night to read your assigned pages.
- After/during your reading, reflect on the chapters and consider the important things you can learn from that day's reading. Feel free to record them down in a journal or on a piece of paper.
- Each day we will share out what we learned from our books. This is going to be informal and should only take a couple minutes each. However, we can certainly incorporate it into our conversations while we run.
- Your reading might not be impactful every night but there should be something you can learn from each and every chapter. This book is one of my favorites and one that I strive to live my life by.
- My goal is for us to find simple lessons/principles from our books that we can apply not only in our racing/running, but in our everyday lives as well (which is more important anyways right?)
- This activity is meant to be fun and insightful! It is not intended to add more stress into your already hectic lives so please let me know if it becomes something you are unable to do. I'm here to work with you!

Mind Gym Reading Schedule

Date	Reading	Pages
Mon 4/24	Foreword – Chapter 2	1-12
Tue 4/25	Chapter 3-5	13-28
Wed 4/26	Chapter 6-7	29-39
Thur 4/27	Chapter 8-9	40-51
Weekend	Chapter 10-12	53-69
Mon 5/1	Chapter 13-15	70-86
Tue 5/2	Chapter 16-17	87-96
Wed 5/3	Chapter 18-20	97-113
Thur 5/4	Chapter 21-23	114-129
Weekend	Chapter 24-26	130-144
Mon 5/8	Chapter 27-29	145-160
Tue 5/9	Chapter 30-32	161-179
Wed 5/10	Chapter 33-35	180-190
Thur 5/11	Chapter 36-38	191-206
Weekend	Chapter 39-41	207-224

Sports Psychology: Small Group Talks

- Topics Covered
 - How do you maximize your performance?
 - How can you harness faith in yourself to benefit your athletic performance?
 - How can you teach your body to trust itself and my instincts?
 - Embracing Failure
 - Perception of Effort vs. Reality
- Optional & Post-Practice
- Gave some athletes an outlet and arena to be vulnerable
- Groups of teammates grew closer as they began to understand what each other brought to the table (4x800m Relay Team)



Questions?

Ask now or feel free to contact me via methods below.

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References

- <https://www.highperformancewest.com/>
- <https://runningscience.co.za/>
- <http://www.scienceofrunning.com/>
- The Science of Running by Steve Magness
- The Long Sprint – Reclassifying the 800m by Mike Cox, Techniques Magazine
- Optimum Speed Distribution in 800m and Training Implications by Kevin Prendergast
- Mind Gym: An Athlete's Inner Guide to Excellence by Gary Mack
- How Bad Do You Want It? by Matt Fitzgerald