# SECTION OF THE SECTIO

**JANUARY** 3 - 5, 2018 CHARLOTTE N. CAROLINA





## Pragmatic Programming: Toward Elite Enhancement



#### **Conflict of Interest Statement**

I have no actual or potential conflict of interest in relation to this presentation....unless winning is a violation in the terms of service.



## **Objectives**

Review the planning tactics used for athletes competing toward international competition in a variety of speed sports.

- 1. Describe overarching framework along with guiding concepts.
- 2. Demonstrate training as a curriculum.
- 3. Display training units that define each phase of training.
- 4. Discuss related monitoring data that affirms decision making.







#### Problem

Vastly different sports

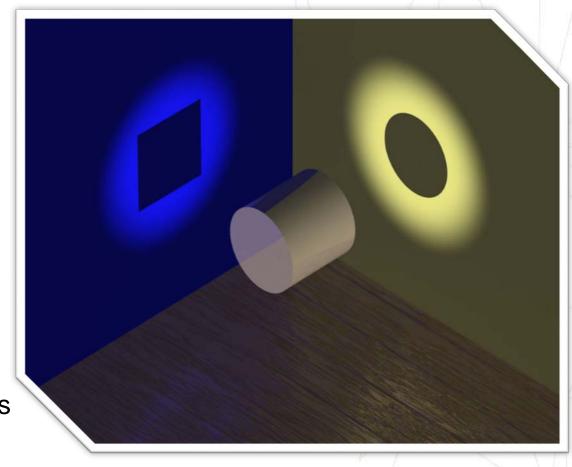
- Dominant limbs
- Competition Surface
- Temperature
- Athlete Responsibilities

#### Solution

Look beyond appearances

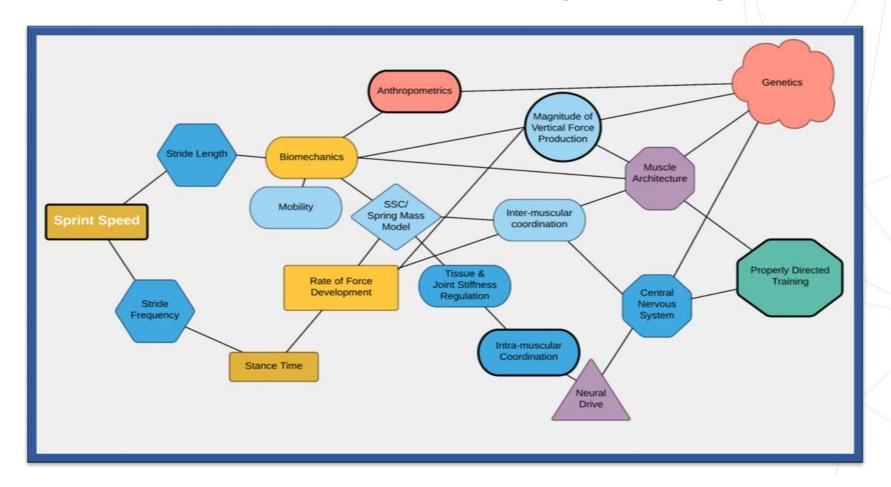
#### Similar Limiting Factors

- 1. Properly Timed Force Production
- 2. Properly Tolerated Reaction Forces
- 3. Properly Directed Force Transmission





## Deterministic Model of Sprint Speed

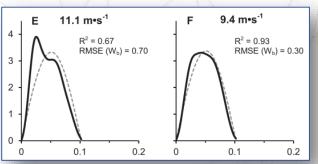




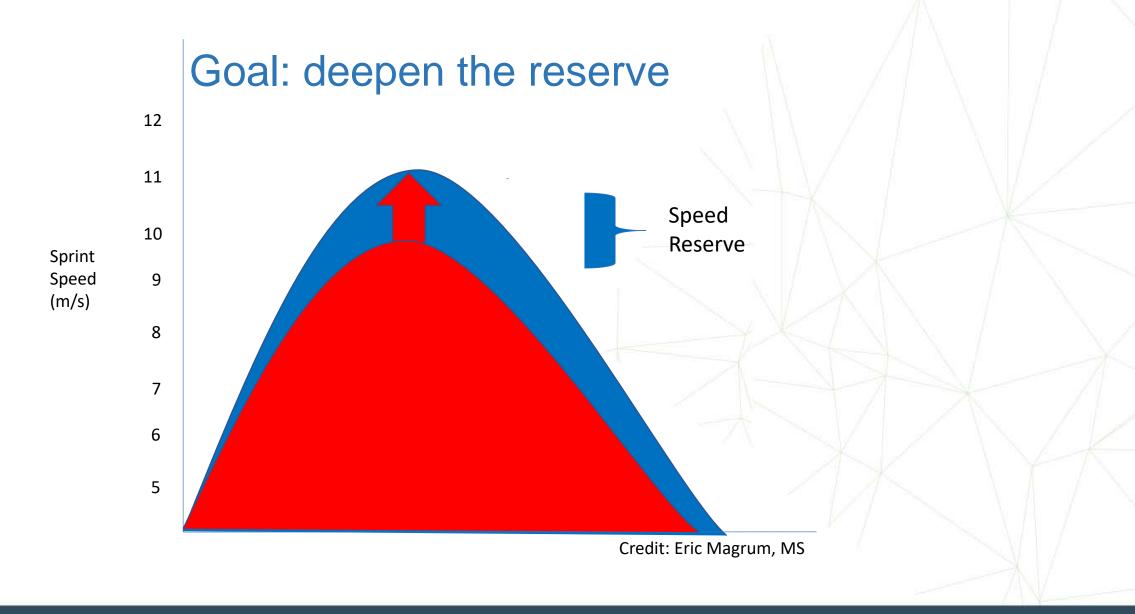
## Plainly Speaking...

- 1.Large Forces each step;
- 2. Swing time doesn't't matter;
- 3. Higher RFD = more distance in flight;.
- 4. During flight, better sprinters utilize ground reaction forces to achieve an optimal position with which to strike the ground. This is demonstrated by stacked joints, neutral hips/pelvis, flexed hip leading to "high knee", and more proximal ground contact.
- 5. This sets up next stance phase where most force can be produced upon contact, allowing preservation of stretch-shortening cycle "elasticity".











#### Seamless Sequential Integration

#### Describes the summated aspects of:

- 1. Conjugate Sequential/ Phase Potentiation: Logically Organized Fitness Phases
- 2. Block: Concentrated Loads, Unidirectional Loading, Saturates a Quality
- 3. Vertical Integration: Management of fitness characteristics over a long phase...
  - retention versus removal
- 4. Short to Long: Traditionally describes maturation of acceleration prior to top speed running, ideally refers to skill proficiency
- 5. Procedural Memory Development: Method to address cognitive load through segmented learning opportunities



## PERIODIZATIO





- Performance Optimization
- Individualized Dosing
- 3. Planned Rest and Recovery
- 4. Prevention of Overtraining & Injury
- 5. General to Specific
- 6. Extensive to Intensive Workloads
- 7. Planned Variation
- 8. Cyclic and Phasic
- 9. Evidence-Driven



#### Periodization





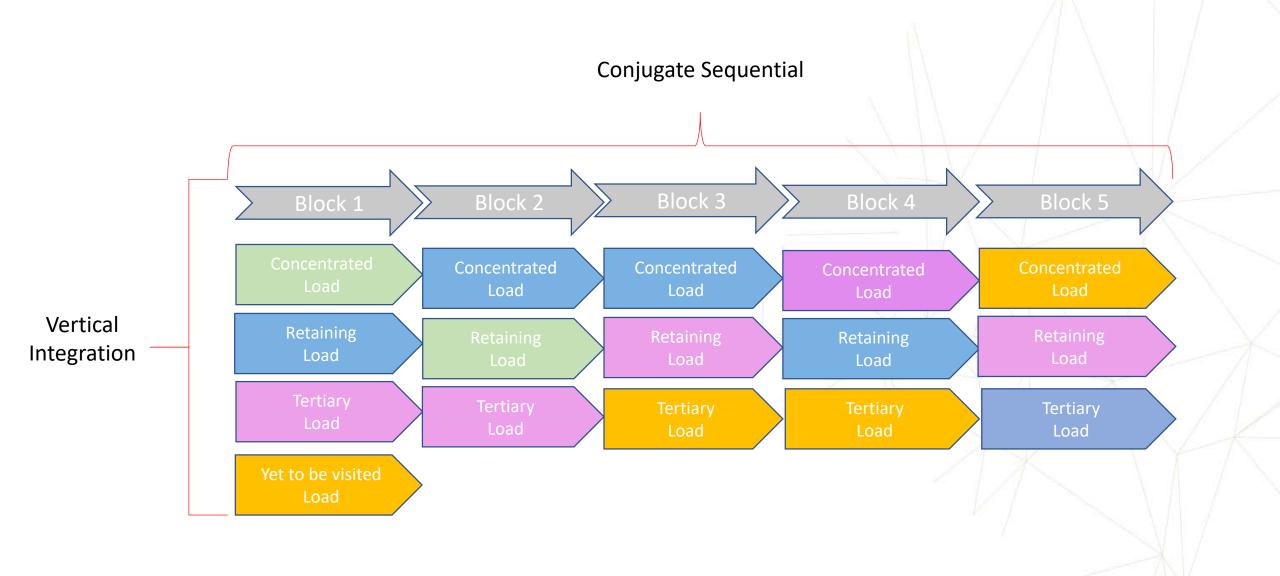
#### **Programming**



- 1. Frequency
- 2. Density
- 3. Volume
- 4. Intensity
- 5. Exercise Mode
- 6. Exercise Order
- 7. Sets
- 8. Repetitions
- 9. Recovery Mode
- 10. Recovery Duration

- 1. Block
- 2. Undulating
- 3. Fluid
- 4. Conjugated
- 5. Concurrent
- 6. Traditional
- 7. Flexible
- 8. Reverse
- 9. Non-Linear
- 10. Linear

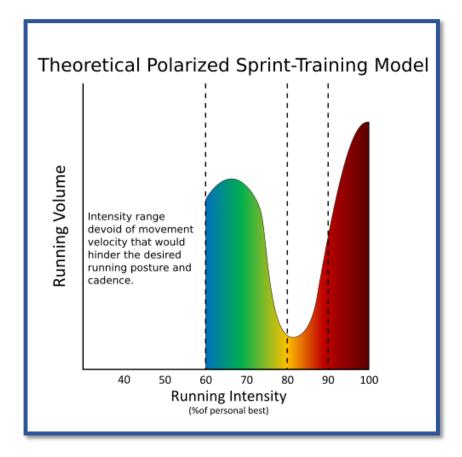


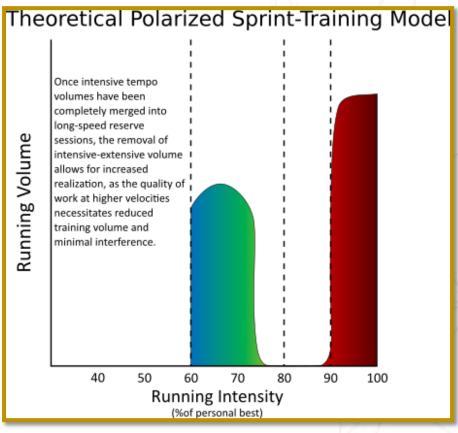




#### NSCA COACHES CONFERENCE

## **Polarity**

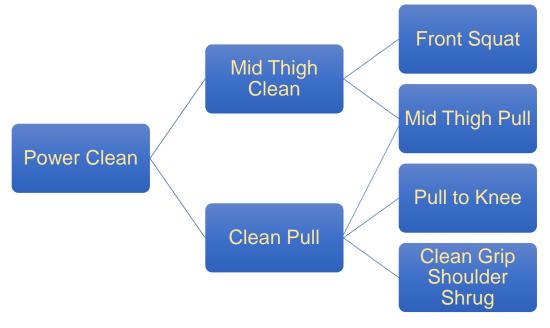






### Procedural Memory development

Guides much of the design process with regard to concentrated loads (skills) and exercise selection





"IF YOU DON'T KNOW WHERE YOU ARE GOING, YOU'LL END UP SOMEPLACE ELSE."

- YOGI BERRA



#### Short to Long

- 1. More than distance prescription
- 2. Refers to skill acquisition, maturity, maintenance
- 3. "If it looks right, it'll fly right": Magnitude & Direction



#### Organization of the Curriculum

Acceleration : Incline

Strength Endurance

Miometric Jumps/ Throws

Intensive/ Extensive Tempo Acceleration: Flat

Maximal Strength

Miometric: Intro

Extensive Tempo

Transition/ Intro Top
Speed

Absolute Strength

Continued Mio/ Intro Plyometric

Extensive Tempo Maintenance

Top Speed

Strength Speed

Continued Mio/ Plyometric

Extensive Tempo
Restoration

**Competitive Speed** 

Speed Strength

Continued Mio/ Plyometric

Extensive Tempo Restoration

Training Year



#### Setting the Load: Calculate & Autoregulate

PRESCRIBED SET-REP	% OF SET-REP BEST	REPS LEFT AFTER FIRST SET	REPS LEFT AFTER LAST SET	
	70%	5	4-5	
4x2	75%	4-5	4	
	80%	4	4	
	82.5%	3-4	3-4	
	85%	3	3	
	87.5%	2-3	2-3	
	90%	2	2	
	92.5%	1-2	1-2	
	95%	1	1	
	100%	1	0	
	70%	4-5	4	
	75%	4	3-4	
	80%	3-4	3	
	82.5%	3	2-3	
7.2	85%	2-3	2-3	
3x2	87.5%	2	1-2	
	90%	1-2	1-2	
	92.5%	1	1	
	95%	1	0-1	
	100%	1	0	

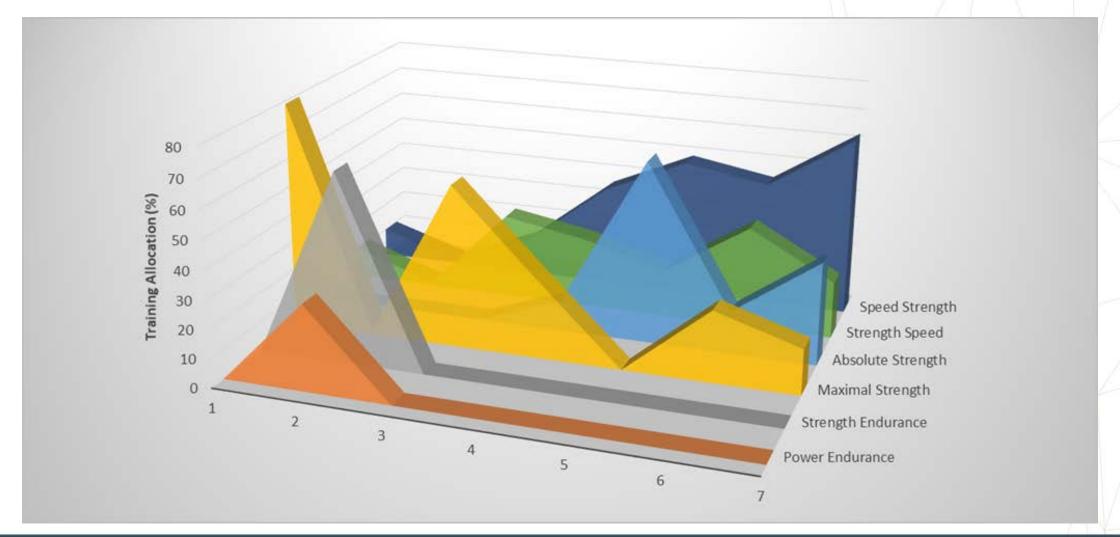


## Heavy & Light Days

Day	Exercise	Set	Load	Average Velocity	RIR	Characteristic
20.1						
Monday	Push Press	WU 1	135	1.26	6	Starting Strength
_		WU 2	160	1.11	5	Speed Strength
		WK 1	175	0.93	2	Strength Speed
		WK 2	185	0.96	3	Strength Speed
		WK3	185	0.92	2	Strength Speed
		WD 1	150	1.19	4	Speed Strength
	Back Squat	WU 1	185	1.16	7	Speed Strength
-		WU 2	235	1.04	4	Strength Speed
		WK 1	280	0.77	3	Max Strength
		WK 2	285	0.73	2	Max Strength
		WK3	275	0.76	3	Max Strength
		WD 1	200	1.13	6	Speed Strength
Friday	Push Press	WU 1	125	1.32	5	Starting Strength
		WK 1	150	1.16	4	Speed Strength
		WK 2	150	1.22	4	Speed Strength
		WK3	150	1.2	4	Speed Strength
	Back Squat	WU 1	155	1.28	7	Starting Strength
	Data oquat	WU 2	205	1.12	5	Speed Strength
		WK1	225	1.04	4	Speed Strength
-		WK 2	230	1.1	4	Speed Strength
		WK3	230	1.07	4	Speed Strength

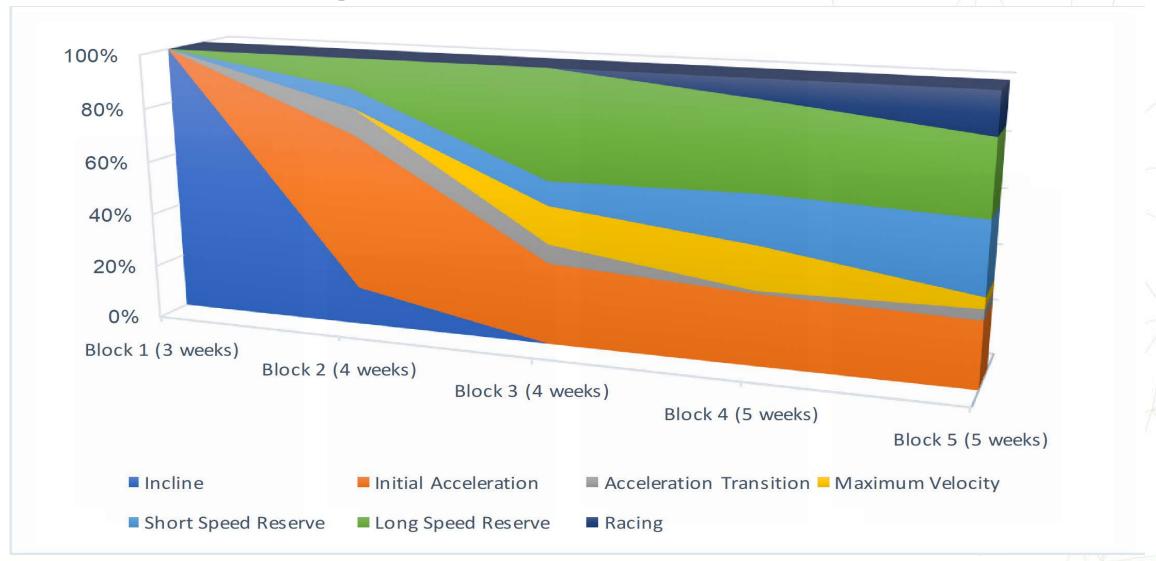


## sequenced Integration: Strength



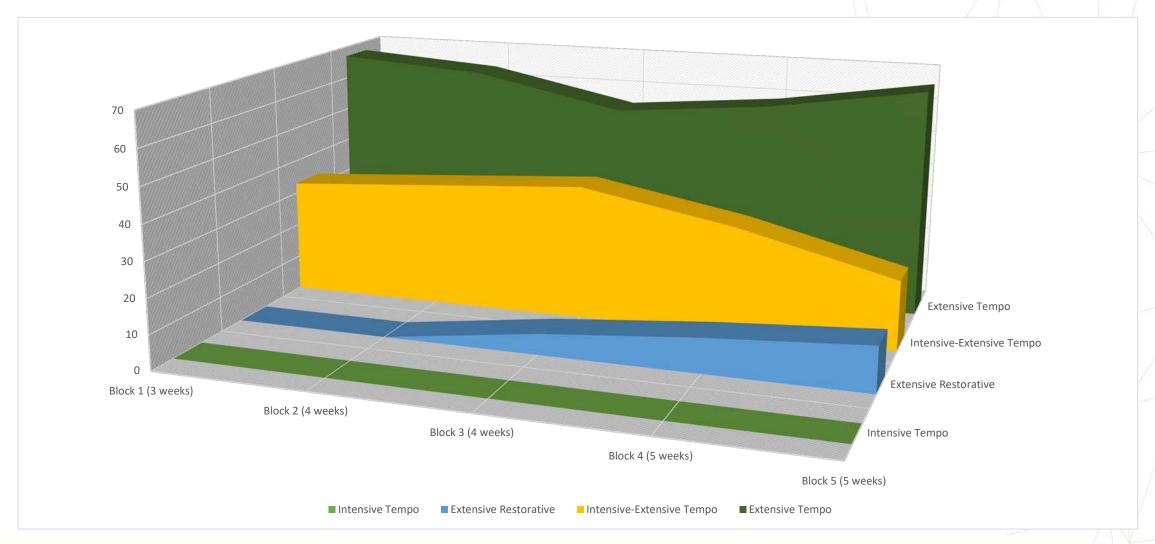


#### Sequenced Integration: Speed





## sequenced Integration: Tempo





#### Speed sequencing

## Acceleration 1. Incline Sprints 2. Sled Towing 3. Sled Pushing 4. Acceleration Holds 1. Finish Drills 2. Completes 3. Subtle Decline? 4. Complexes 4. Complexes

#### Aim(s):

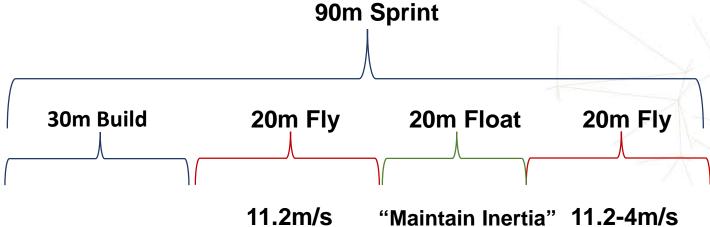
- 1. Just as with strength training, the ability to produce force underpins sprint success.
- 2. Never completely remove acceleration training.
- 3. Build top speed as readiness becomes apparent (AKA optimized force production)



#### NSCA COACHES CONFERENCE

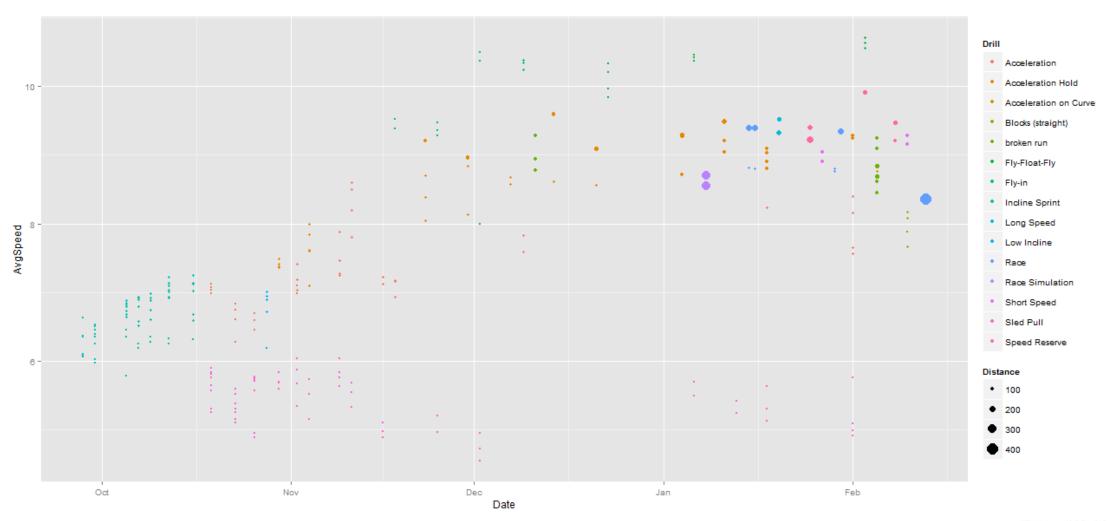
#### In & Out's/ Fly-Float-Fly

- Intense training unit meant to exploit density...
- More meters at high velocity than what can be managed in straight sprint....neural factors.
- Entry modified based on point at which shin and torso are "up".
- The Song remains the same......"Push and Climb"





### Surfing with speed





#### Strength sequencing

#### Max Strength

**Barbell Squats** 

**Overhead Presses** 

Benching

Mid-Thigh Pulls

Full Pulls

Additional Tools

2. Clusters

1. Straight Sets

Strength-Speed

Push Press/ Push Jerk

Mid-Thigh Pulls

Mid-Thigh Clean/Snatch

Power Cleans/ Snatch

**Additional Tools** 

1. Clusters

2. Wave-Loads

Speed-Strength

CM-Clean & Snatch

CM-Shrugs

**Squat Jumps** 

**Additional Tools** 

1. Clusters

2. Wave-Loads

3. Reduced ROM

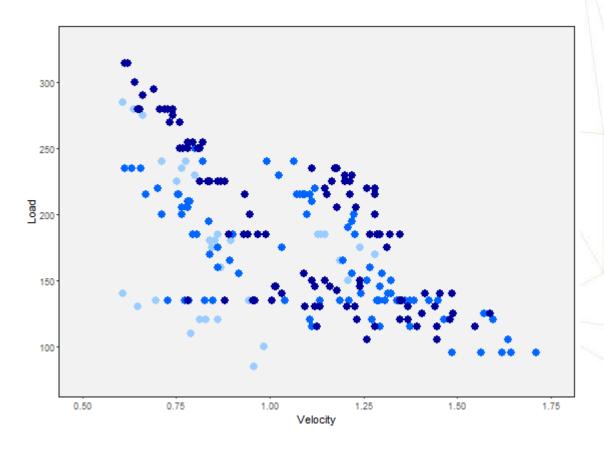


## Surfing with Strength

Block II

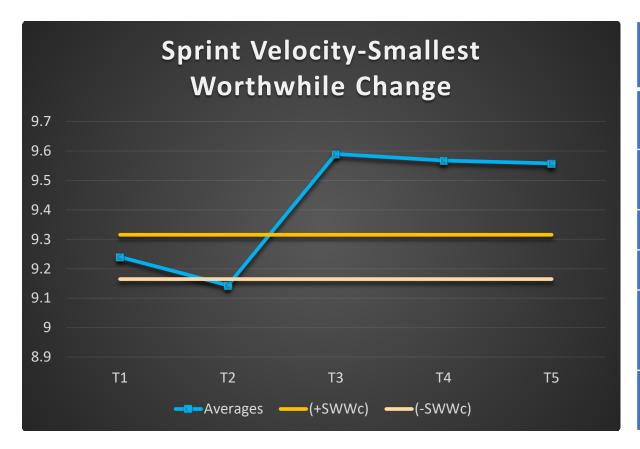
**Block III** 

**Block IV** 





#### Transfer



	T1 Baseline	T2	ТЗ	T4	T5	T5-T1 % Change
Mean Velocity (m/s)	9.24m/s	9.14m/s	9.59m/s	9.56m/s	9.55m/s	(+3.35%)
Terminal Velocity (m/s)	9.41m/s	9.27m/s	9.9m/s	9.81m/s	9.72m/s	(+3.29%)
Mean GCT (s)	0.0976s	0.0970s	0.0963s	0.0977s	0.0975s	(-0.61%)
Terminal GCT (s)	0.0960s	0.0960s	0.0900s	0.0940s	0.0940s	(-2.08%)
Mean Isometric Peak Force (N)	3104.70	3124.41	3137.76	3613.75	DNP	(+16.39%)
Isometric Peak Force (N)	3215.49	3222.81	3153.49	3685.67	DNP	(+14.6%)



#### Surfing is Global Exposure

#### **MAX STRENGTH**

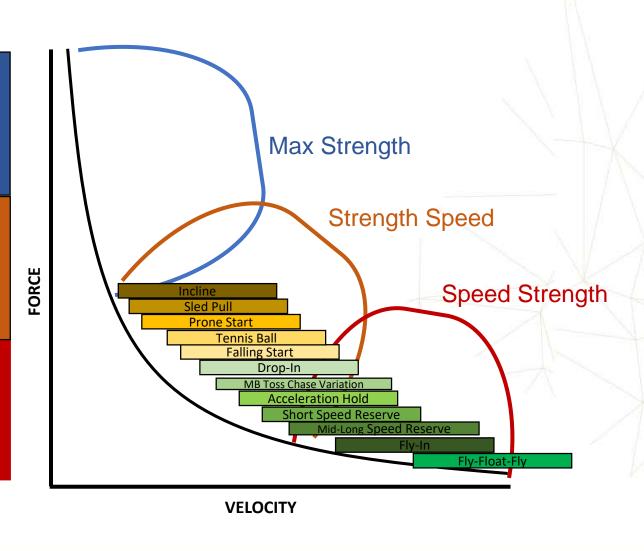
Squat Press Bench Press Mid-Thigh Pull Clean/Snatch Pull

#### STRENGTH-SPEED

Push Press Push Jerk Mid-Thigh Pull Mid-Thigh Clean/Snatch Power Clean

#### **SPEED-STRENGTH**

Countermovement Shrug
Countermovement
Clean/Snatch
Multi-jumps
Throws





Sled Pull

**Prone Start** 

Tennis Ball

**Falling Start** 

Drop-In

MB Toss Chase Variation

Accel Hold

**Short Speed Reserve** 

Mid - Long Speed Reserve

Fly-In

Fly-Float-Fly



#### **Practical**

- Experience a variety of sprint training tactics and drills covered within this presentation;
- Go through a progression of multi-throws and jumps that compliment phases of sprint development;
- Review the weightlifting derivatives that can enhance power output across the spectrum.



