

NSCA

COACHES

CONFERENCE 2023

JANUARY 4 – 6, 2023

Charlotte, NC & Online | 2.0 CEUs

#NSCACoaches23

CONFLICT OF INTEREST STATEMENT

I have no actual or potential conflict of interest in relation to this presentation.

Adaptive Training Methods

For Speed & Conditioning In Football

- Acceleration
- Multi Direction
- Max Velocity
- Conditioning



Performance Speed

- Linear Speed

- Phase I -Start
- Phase II-Drive Phase
- Phase III-Transition Phase
- Phase IV-Top Speed
- Phase V-Finish

- ↑ Force through strength, plyos (tissue quality) and/or body comp

- Number 1 variable that contributes to speed is power to mass ratio

- Skeletal make-up will determine optimal mass for performance

Performance Speed

- Linear Speed

- Stride Length-“how far” does the center of mass travel in space between contacts
 - \uparrow force output \downarrow distance
- Stride Frequency-how many ground contacts within stride
 - Slow \rightarrow Fast
- *Any movement that doesn't create motion is inefficient*

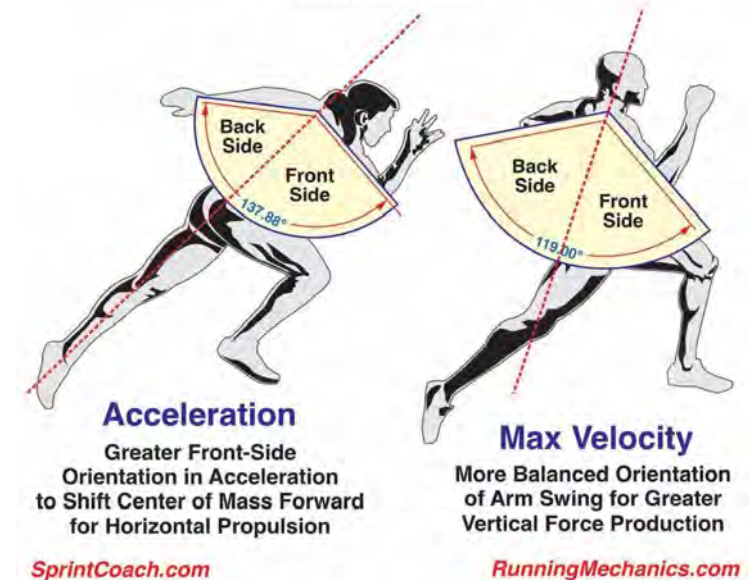
Acceleration

- Acceleration

- A systematic approach to consistently achieving >70% of max velocity earmarked with forward posture (45 degrees) with hips projecting forward
- Acceleration=Horizontal Gain in velocity
- Catapult 0-8mph (8mph increments)

Arm Swing Mechanics Acceleration vs Max Velocity

@DerekMHansen



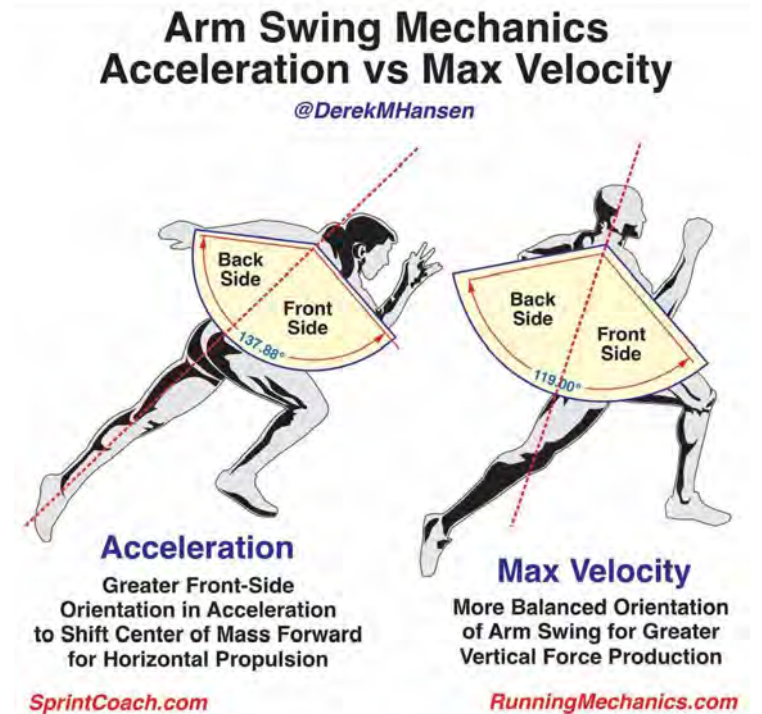
Acceleration

- Principles & Guidelines
 - Starts (0-10yds)
 - Position
 - 2 pt
 - 3pt
 - Half Kneeling
 - Resisted → Unresisted
 - Provide adequate recovery
 - Ex: 1:5 work/rest ratio
 - Posture specific
 - Center mass forward
 - Horizontal displacement
 - Low technical demand
 - Low risk/High return



Max Velocity

- A systematic approach to consistently achieving velocities >95% of top speed earmarked with upright or vertical posture/mechanics
- Max Velocity=Hold Velocity Phase
- Cyclic
- Over 14pmh or > 80% of Top Speed



Max Velocity

- Programming
 - Jumps (Vertical)
 - Bounds (Single Leg)
 - Fly In's (20yd/25yd/30yd Run In)
 - Build Ups (30-60yds)
 - Wickets (8yd/12yd/15yd Run In)
 - Quality over Quantity

Max Velocity

- Principles & Guidelines
 - Short to long
 - Ex: 10yd Fly, (10,15,20)
 - Provide adequate recovery
 - Ex: 45 seconds for every 10 yds
 - Ex: 1:8 work/rest ratio
 - Posture specific
 - Upright torso
 - Ex: Cheek to cheek
 - Ex: Strike & extend
 - *****High technical demand*****
 - Increase injury risk if progressed to fast



Multi Direction

- The ability to accelerate, decelerate, redirect & reaccelerate in a planned fashion
- Agility demonstrates the ability to do all of the above in an unplanned or reactive fashion



Multi Direction

- Programming
 - Planned, 5yd increments
 - Short to long
 - Planned → Reactive
 - Provide moderate recovery
 - 1:4 Work rest ratio
 - Posture specific
 - Low
 - Shin angle
 - Limit excessive angles outside of framework
 - High technical demand
 - Moderate risk/High return



Conditioning

Using High Speed Yards to match Conditioning Volume to Fall Training Camp & Fall In-Season Running Demands.

Summer Pre-Season

- Week 1 - 4x7
- Week 2 - 4x8
- Week 3 - 4x9
- Week 4 - 4x10
- Week 5 - Off
- Week 6 - 4x6 - Conditioning Test

Purpose

- Submaximal Volume Accumulation for High Camp Volume Demands (Fit 20 Hours of Work in 8 Hours)
 - Match High Speed Yards with Position Demands (Skill/Mids)
 - Use other 3 Run Days for different demands (COD, Max Velocity, Patterned Running, Stadiums)
 - Reduce Non-Contact Soft Tissue Injuries (Zero in Fall Training Camp)
 - Build Aerobic Conditioning Base (Heart Rate Training 130-150 BPM)
- Findings: Statistically Significant Decrease of Average Heart Rate during Reps & Between Quarters

Position Group	Winter Off-Season (Terp Time Total)	Summer Pre-Season (Tempos)	Fall Training Camp	Fall In-Season
RX	Mon = 80s 12-16 Thurs = Curves 8-12	Mon = 4x6-10 Tempos	Practice Volume	Practice Volume
Skill	2350	1510	1583	1250
Mid	1648	1496	1138	645
Big	1383	1349	350	260



Conditioning

Volume Goals

- Week 1 - Acclimatization
- Week 2 - 105% Game Week
- Week 3 - 110% Game Week
- Week 4 - Taper (10 Days Out from Game 1)

Purpose

- Soft Tissue Injury Reduction (Zero Missed Camp Practices due to Non-Contact ST in 2022)
- Model Game Week - Circalunar Rhythm - Hormonal Responses to Weekly/Monthly Rhythms - Ex. High Volume, High Intensity/Contact Tuesday, Wednesday, Saturday to Simulate Heavy Practice Day, Game Day Inflammation & Recovery Response

Fall Camp Calendar

TEAM	569 Estimated Game	2105 Estimated Weekly Load	2023 Fall Camp Planning					3.5 Average PL/Min	
	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	WEEKLY TOTAL	
CAMP WEEK 1	7/30	7/31	8/1	8/2	8/3	8/4	8/5	TOTAL	
Acclimatization				Helmets	Helmets	Shells	Shells		
MINUTES				90	90	100	110	390	
TIME				1:30	1:30	1:40	1:50	6:30	
PLAYER LOAD				315	315	350	385	1365	
65%									
				55%	55%	62%	68%	240%	
CAMP WEEK 2	8/6	8/7	8/8	8/9	8/10	8/11	8/12	TOTAL	
Shells		Shells	Full	Full	Full		Scrimmage		
MINUTES		90	125	145	85		170	615	
TIME		1:30	2:05	2:25	1:25		2:50	10:15	
PLAYER LOAD		315	438	508	298		595	2153	
102%									
		55%	77%	89%	52%		105%	378%	
CAMP WEEK 3	8/13	8/14	8/15	8/16	8/17	8/18	8/19	TOTAL	
Peak		Shells	Full	Full	Full		Scrimmage		
MINUTES		100	135	150	90		180	655	
TIME		1:40	2:15	2:30	1:30		3:00	10:55	
PLAYER LOAD		350	473	525	315		630	2293	
109%									
		62%	83%	92%	55%		111%	403%	
CAMP WEEK 4	8/20	8/21	8/22	8/23	8/24	8/25	8/26	TOTAL	
Taper		Shells	Full	Full	Shells	Walk Thru	Mock Game		
MINUTES		100	145	125	80		60	510	
TIME		1:40	2:25	2:05	1:20		1:00	8:30	
PLAYER LOAD		350	508	438	280		210	1785	
85%									
		62%	89%	77%	49%		37%	314%	

<75% Game Load
75-100% Game Load
>100% Game Load



Ryan W. Davis, CSCS

Adaptive Training Methods For Speed & Conditioning in Football



Conditioning

- 8 hour training week vs 20 hour competition week
- Measuring Success
 - 1. Soft tissue injuries (groin, hamstring, hip flexor)
 - 2. Low back issues
 - 3. Return to practice
 - 4. Was the Head Coach able to accomplish the plan?



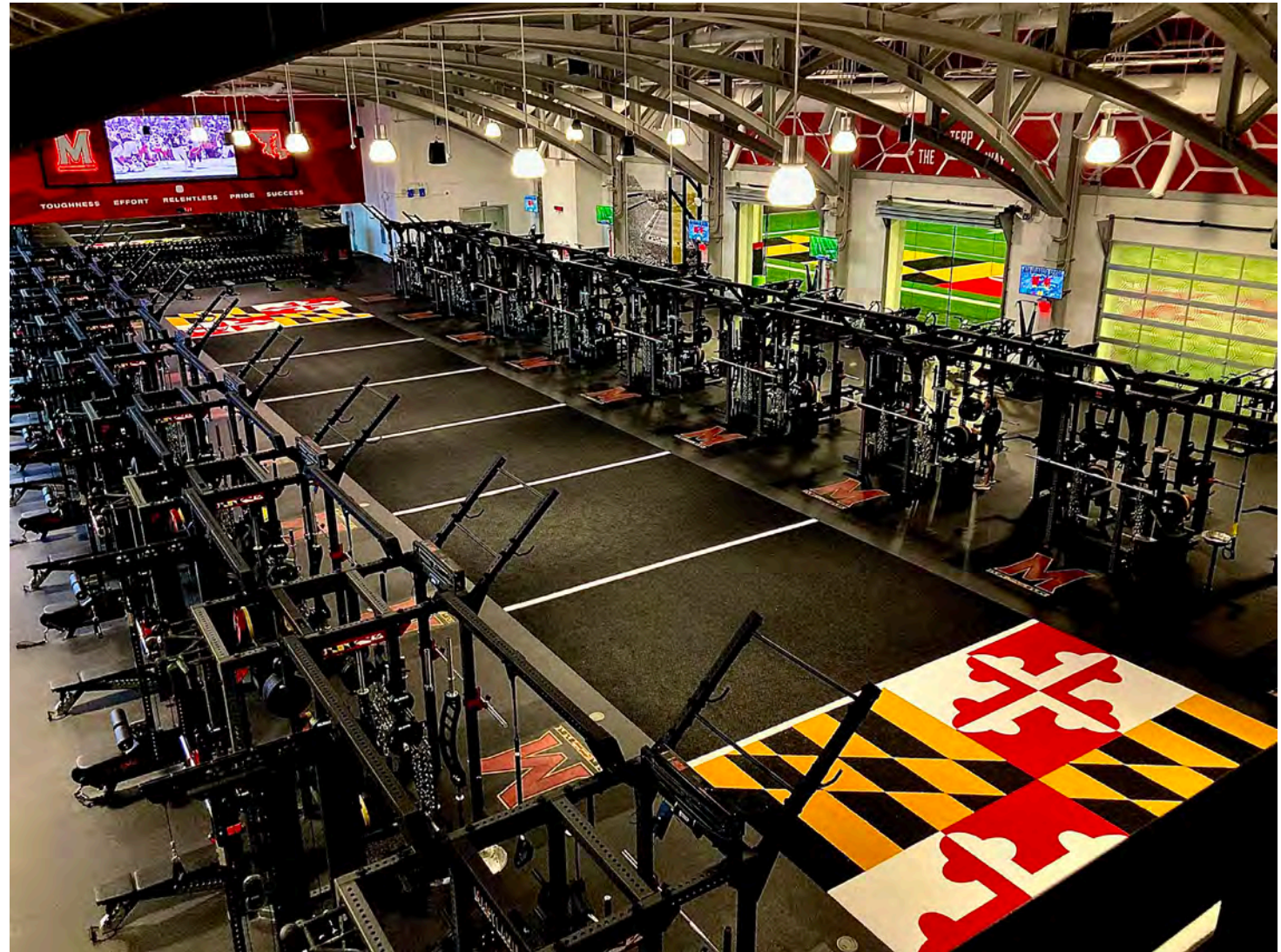
@CoachRyanDavis



@CoachRyanDavis



rwdavis@umd.edu



Ryan W. Davis, CSCS

Adaptive Training Methods For Speed & Conditioning in Football

