

MINNESOTA STATE UNIVERSITY MANKATO

## Sprint Drill Webinar



**Chris Parno - Sprints/Hurdles/Relays**  
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 @chrisparno  
 @Chris\_Parno

Big ideas. Real-world thinking.

1

## The Background

- University of Minnesota – Duluth**
  - < B.S. Physical and Health Education
  - < Coach – John Fulkrod
  - < Sprints/Hurdles/Multi
- Augustana University – Sioux Falls, SD**
  - < M.A. Sports Administration
  - < Jim Vahrenkamp/Tracy Hellman
  - < Graduate Assistant Sprints/Hurdles/Jumps
- Minnesota State University (2012)**
  - < Associate Head Coach
  - < Sprints/Hurdles/Relays
  - < Recruiting Coordinator

### Mentors/Influences

- Charles Clinton – USATF
- Boo Schexnayder – USTFCCCA
- Kebba Tolbert – Harvard
- Mark Mangiacotti – Harvard
- Tony Veney – USATF
- Gabe Sanders – Boston
- Andreas Behm – Altis
- Dan Pfaff – Retired
- Jim Vahrenkamp – UND
- Ernie Clark – NAU
- Sammy Dabbs – Private sector
- Justin Wickard – Tier1Athlete

"Brain to pick, an ear to listen, and a push in the right direction"

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2

## History of Professional Development

- USATF**
  - < Level 1 Certification (2011)
  - < Emerging Elite Sprint/Hurdles Coach Clinic (2014)
  - < Level 2 Certification (2015)
    - ✓ Sprints/Hurdles/Relays (2015)
    - ✓ Jumps/Multi (2016)
  - < Level 3 Certification – Sprints (2017)
  - < USATF Instructor Training – (2018)
  - < USATF Mid-American Regional Education Coordinator
    - ✓ Level 1 Schools Director
  - < Level 2 Instructor (2022, 2023)
  - < Level 3 Advisor (2023)
- USTFCCCA**
  - < Technical Certification (2011)
    - ✓ Tech Cert Instructor
  - < Track and Field Program Management Certification (2013)
  - < Sprint, Hurdle, and Relay Event Specialist (2013)
  - < Combined Events Specialist (2014)
  - < Strength and Conditioning Advanced Endorsement (2015)
  - < Short Sprints Masters Endorsement (2017)
  - < Hurdle Masters Endorsement (2018)
- IAAF**
  - < Level 5 certification (2017) – Sprints
- Altis**
  - < Short Sprints Course (2020)
  - < Hurdle Course (2021)



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## Path for Today

1. Important aspects of acceleration
2. Drills to work and improve acceleration
3. Important aspects of max velocity
4. Drills to work and improve max velocity
5. Warm-ups



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## Dynamics of Acceleration

Emphasis on Horizontal Forces

- |                         |                                 |
|-------------------------|---------------------------------|
| 1. Step Length          | 1. Shorter to longer            |
| 2. Ground Contact Time  | 2. Longer to shorter            |
| 3. Shin Angle w/ Ground | 3. Smaller to larger            |
| 4. Velocity             | 4. Slower to faster             |
| 5. Step Frequency       | 5. Slower to faster             |
| 6. Heel Recovery        | 6. Lower to higher              |
| 7. Force                | 7. Expressed through Shin Angle |

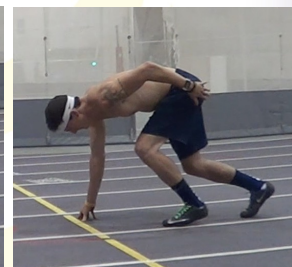
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## 3-pt Start

**\*\*Perpendicular Femur\*\***

## Set Position



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## Initial Push

## Cross



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## Big Split

**"Say What? Get Off Me"**

## Second Attack

**Underneath COM**



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8



9



10

**Acceleration Drilling**

- **Focus on different starting positions (2pt, 3pt, 4pt)**
  - < Shin angles dictate the line of force
  - < Newtons 3<sup>rd</sup> Law (action/reaction)
- **Push and Projection**
  - < Horizontal projection is involved in each drill
  - < Large amplitudes of movement (arms and legs)
  - < "Feel the foot behind you"
- **Repeat elongated long lines throughout initial accel positions**
  - < Lean originates from ankle (limit breaking at waist)
  - < Overcoming initial resting inertia

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11



12



13



14



15



16



### Lunge W/Toe Drag



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### Continuous Toe Drags



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### Crouch Start Drag 2



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### Drop-in Start Drag 2



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20



21



22



23



24



25



26

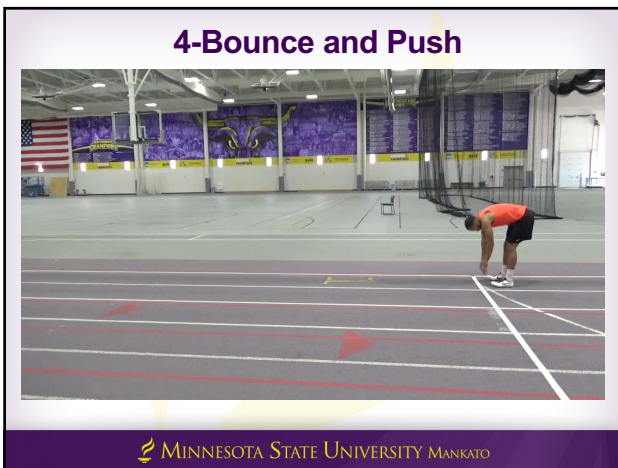


27



28





29



30



31



32



## Frontside vs. Backside



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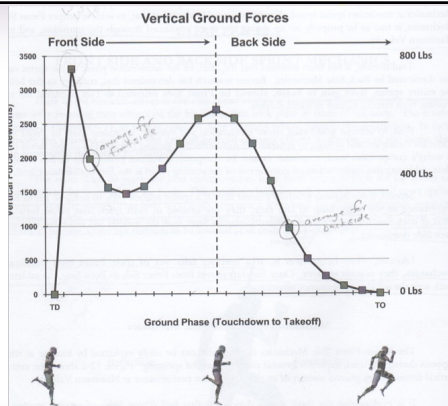
33

## Max Velocity Drilling

- All these drills focus on front side mechanics
  - < Minimize backside focus = we don't eliminate it
  - < Proximal to distal movement
- I cue to "lift from the hip"
  - < Thigh leads the motion
  - < Thigh popping
- Stop and start often to fix and teach
- Highlight good performance
  - < Attempt to demonstrate good performances 😊
- Cue how the certain drill emphasized something within actual sprint workouts
  - < "Feel like you are going over wickets"

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## Single Leg March



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**A-March**



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**A-Skip**



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**B-March**



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**B-Skip**



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### Double A Skip (RR/LL)



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41

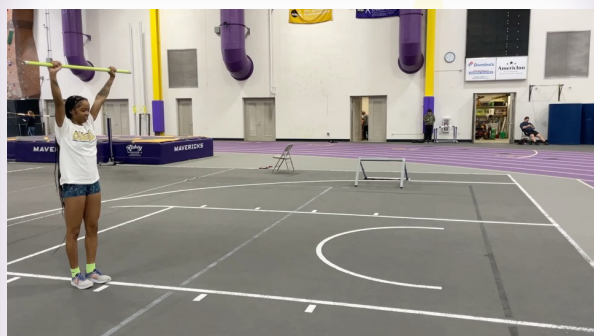
### Alternating A/B's



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### A-March w/ Plank



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### Grab Backs



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### Dribble Video



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### Dribble Knee

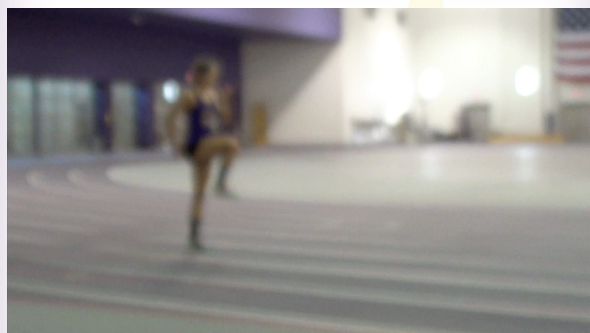
Can also do dribble ankle & calf in series



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46

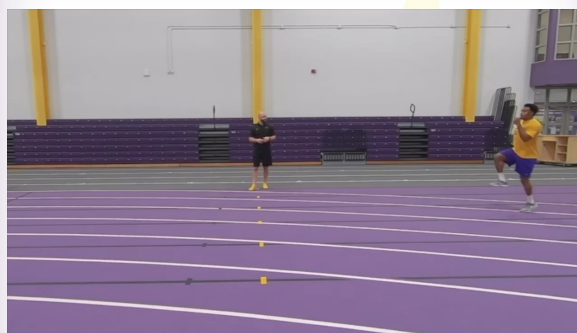
### Skip Switches / A-Replacement



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47

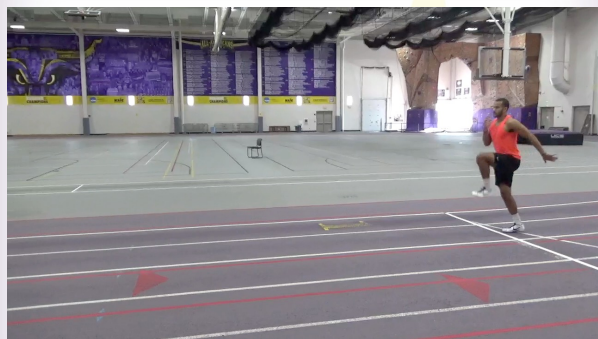
### A-Switch Bounce for 2



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### A-Skip w/ Bounce for 3



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### Hit/Hit/Pause



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### A-Run w/ Plank



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51

### Banded A-Run (1,000 step drill)



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### Straight leg bounds



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### Straight Leg Bound – Break The Knee



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### Continuous Quick Fire



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### Alternating Quick Fire



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## High Knee Lean and Go



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## Locking Leg Swings



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## Progressive Wicket Distances

Youth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0	1.55	3.10	4.72	6.35	8.05	9.75	11.53	13.31	15.09	16.91	18.75	20.57	22.50	24.30	26.19	28.14	30.08
0	1.58	3.15	4.80	6.45	8.18	9.90	11.71	13.51	15.32	17.17	19.03	20.88	22.83	24.66	26.58	28.54	30.51

Women	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0	1.60	3.20	4.88	6.55	8.31	10.06	11.89	13.71	15.54	17.42	19.31	21.18	23.15	25.02	26.96	28.95	30.94
0	1.63	3.25	4.95	6.65	8.43	10.21	12.07	13.92	15.77	17.68	19.58	21.49	23.48	25.37	27.34	29.36	31.37
0	1.65	3.30	5.03	6.78	8.56	10.36	12.24	14.12	16.00	17.93	19.86	21.79	23.80	25.73	27.73	29.76	31.89
0	1.68	3.35	5.10	6.86	8.69	10.51	12.42	14.32	16.23	18.18	20.14	22.10	24.13	26.09	28.11	30.17	32.23
0	1.70	3.40	5.18	6.96	8.81	10.67	12.60	14.53	16.46	18.44	20.42	22.40	24.45	26.45	28.49	30.58	32.67
0	1.73	3.45	5.26	7.06	8.94	10.82	12.78	14.73	16.69	18.69	20.70	22.71	24.78	26.81	28.87	30.99	33.10

Men	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0	1.75	3.51	5.33	7.16	9.07	10.97	12.95	14.93	16.92	18.95	20.98	23.01	25.10	27.17	29.26	31.39	33.53
0	1.78	3.56	5.41	7.26	9.19	11.13	13.13	15.14	17.15	19.20	21.26	23.32	25.43	27.53	29.64	31.80	33.96
0	1.80	3.61	5.49	7.37	9.32	11.28	13.31	15.34	17.37	19.46	21.54	23.62	25.76	27.89	30.02	32.21	34.39
0	1.83	3.66	5.56	7.47	9.45	11.43	13.49	15.55	17.60	19.71	21.82	23.93	26.08	28.25	30.41	32.61	34.82
0	1.85	3.71	5.64	7.57	9.58	11.58	13.67	15.75	17.83	19.97	22.10	24.23	26.41	28.61	30.79	33.02	35.25
0	1.88	3.76	5.72	7.67	9.70	11.74	13.84	15.95	18.06	20.22	22.38	24.54	26.73	28.97	31.17	33.43	35.69
0	1.90	3.81	5.79	7.77	9.83	11.89	14.02	16.16	18.29	20.47	22.66	24.84	27.06	29.33	31.55	33.84	36.12
0	1.93	3.86	5.87	7.88	9.96	12.04	14.20	16.36	18.52	20.73	22.94	25.15	27.38	29.69	31.94	34.24	36.55

First Practice  
Second Practice

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59

## Wicket Video



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## Acceleration Warm-up



### Minnesota State - FEAR THE BULL Maverick 3 (Acceleration)

1 x	2 x	30 x Side Shuffle w/Arms
1 x	2 x	30 x Easy Carioca (big twists)
1 x	1 x	30 x Lunge with toe drag through
1 x	2 x	20 x Marching 1 (Low A) / A Skip (Low)
1 x	2 x	20 x Marching 2 (Low B) / B Skip (Low)
1 x	1 x	60 x Static Toe Stretch w/ Push Out (hold 4 sec)
1 x	1 x	60 x 4 bounce w/ Push Out
1 x	1 x	60 x 4 bounce Inside Out Toe Bounces w/ Push Out
1 x	2 x	50 x Straight Leg Bound (20m transition)
1 x	2 x	30 x 2 drag jog out
1 x	2 x	40 x Skip for distance
1 x	2 x	0 x LEG SWINGS (for/back - lateral) (10 swings each direction)
1 x	2 x	0 x Body lean knee drive (on wall)
1 x	2 x	60 x Build-ups

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61

## Acceleration Warm-up (shortened)



### Minnesota State - FEAR THE BULL Maverick 8 (Shortened Acceleration)

1 x	2 x	30 x Side Shuffle w/Arms
1 x	2 x	30 x Easy Carioca (big twists)
1 x	1 x	30 x Lunge with toe drag through
1 x	1 x	60 x Static Toe Stretch w/ Push Out (hold 4 sec)
1 x	1 x	60 x 4 bounce w/ Push Out
1 x	2 x	50 x Straight Leg Bound (20m transition)
1 x	2 x	30 x 2 drag jog out
1 x	2 x	40 x Skip for distance
1 x	2 x	0 x LEG SWINGS (for/back - lateral) (10 swings each direction)
1 x	1 x	0 x 10 minutes to finish WU before spikes
1 x	2 x	60 x Build-ups (20-30m, progressive aggression)

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62

## Max Velocity Warm-up



### Minnesota State - FEAR THE BULL Maverick 2 (Max Velocity)

1 x	2 x	30 x Side Shuffle w/Arms
1 x	2 x	30 x Easy skip with arm cross
1 x	2 x	30 x Backward skip 20m w/run-out
1 x	2 x	30 x Up / Out / B-skip (Advanced Schuster's)
1 x	2 x	20 x Marching A / A Skip
1 x	2 x	20 x A switch w/ balanced pause
1 x	2 x	20 x A switch w/3 bounce (switch, 3 bounce, switch)
1 x	2 x	20 x A switch - 3's (switch, switch, switch, pause)
1 x	2 x	20 x A switch - 2's in to dribble knee (switch, bounce, switch, bounce)
1 x	2 x	20 x Marching B / B skip
1 x	2 x	10 x High Knee's (high turn over)
1 x	2 x	30 x Quick Fire (Every two step/Variations)
1 x	2 x	40 x Skip For Height
1 x	2 x	0 x LEG SWINGS (for/back - lateral) (10 swings each direction)
1 x	2 x	60 x Build-ups

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63

## Max Velocity Warm-up (shortened)



### Minnesota State - FEAR THE BULL Maverick 7 (Shortened Max Velocity)

1 x	2 x	30 x Side Shuffle w/Arms
1 x	2 x	30 x Easy skip with arm cross
1 x	2 x	30 x Up / Out / B-skip (Advanced Schuster's)
1 x	2 x	20 x A switch w/ balanced pause
1 x	2 x	20 x A switch w/3 bounce (switch, 3 bounce, switch)
1 x	2 x	20 x A switch - 3's (switch, switch, switch, pause)
1 x	2 x	20 x A switch - 2's in to dribble knee (switch, bounce, switch, bounce)
1 x	2 x	30 x Quick Fire (Every two step/Variations)
1 x	2 x	40 x Skip For Height
1 x	2 x	0 x LEG SWINGS (for/back - lateral) (10 swings each direction)
1 x	1 x	0 x 10 minutes on own - finish WU before spikes
1 x	4 x	30 x Build-ups (20-30m, progressive aggression)

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64

# Thank You!!



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