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100/200m Speed Development

What Is speed?

- The amount of time it takes an object to travel over a certain distance
- Components of Speed
 - Stride length
 - Stride rate
 - Vertical Push
 - Horizontal Push
 - Force
 - Power



Components of Speed

- Force
 - Athlete should generate as much force into the ground as fast as possible
- Power
 - Athletes should produce as much power as possible to move the body down the track. Power to Weight ratio extremely important
- Horizontal vs Vertical
 - Athletes should start producing forces horizontally at the beginning of the race then moving more vertically
- Stride Length vs Rate
 - Length before Rate, must keep both balanced and trained all season
 - Measure and record often

Can we develop speed?

- Genetic make up determine an athletes max potential, but improvement is always possible.
- Degree of improvement that the athlete will make is up to the athletes abilities, choice of training, and his coach

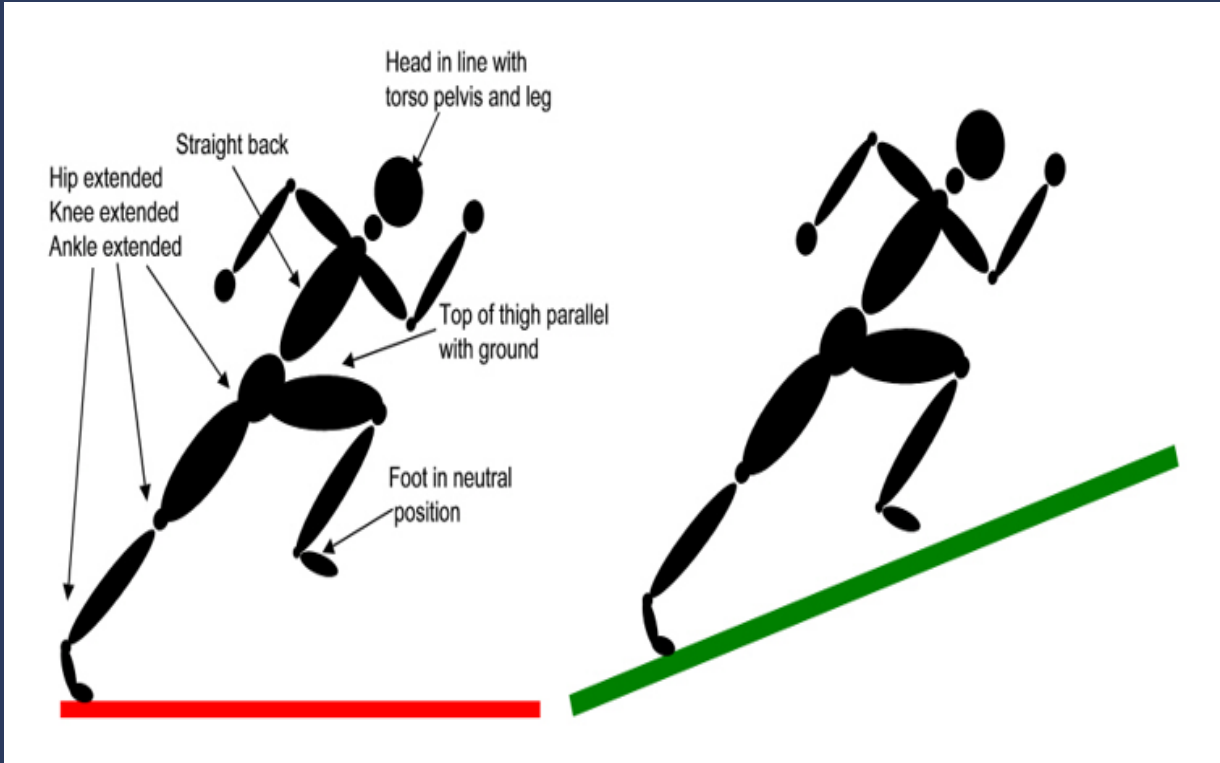
How do we do we develop speed?

- No Cookie Cutter System
 - All athletes adjust to training different
 - Figure out your athletes body type
- **MECHANICS! MECHANICS! MECHANICS!**
 - Most important factor in speed development
- Training force development in the weight room
- Training Stride Length + Rate
- Absolute Speed
- Speed Endurance
- Race Strategy or modeling (zoom)



Mechanics

- Acceleration
 - Posture and Rhythm – Always enforce good posture and teach a sense of rhythm.
 - Even as your athletes get stronger and more powerful their rhythm and body position during the acceleration phase never change
 - Rhythm stays the same distance covered increases
- Full extension of knee, hip and shoulder (Hip Extension)
- Front shin angle as it relates to body angle. You want to see a straight line from support leg to head.
- Recovering shin angle should be less than parallel to ground for first 3 steps



How to Train this?

- Short Hills (10-40m)
- Sled pulls (no more then 10% of body weight)
- Sled Push (heavy)
- Skipping starts to walking starts to roll over starts to 3 point to block starts
- Standing Jumps (Hurdle Hops/Standing Long Jump/Standing Triple Jump
- Weight Room- Primary mover muscle groups
- Sprints (10-60m)
- Every other stadium Steps
- Box Jumps
- Speed Squats

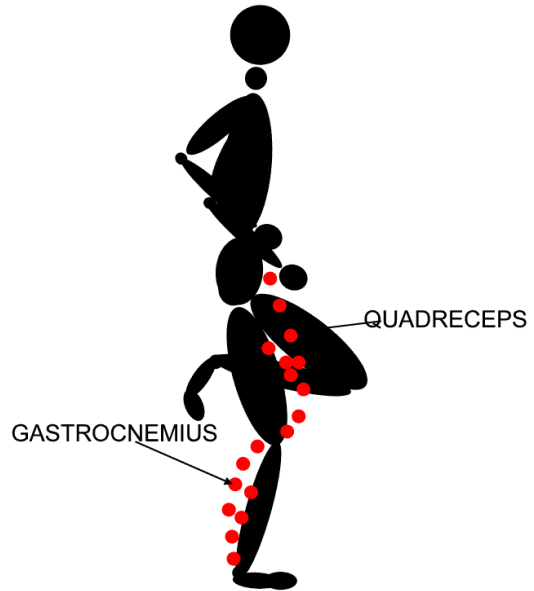
Max Vo Mechanics

- Cues
 - Toe-up
 - Heel-up
 - Thigh-up
 - Hips-up
 - Step over Opposite Knee
 - Push down!

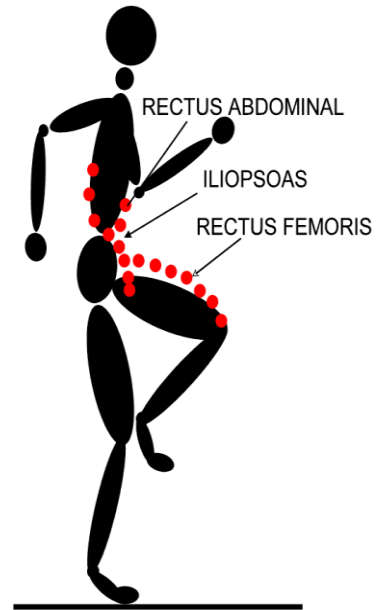


Phases of Max Vo

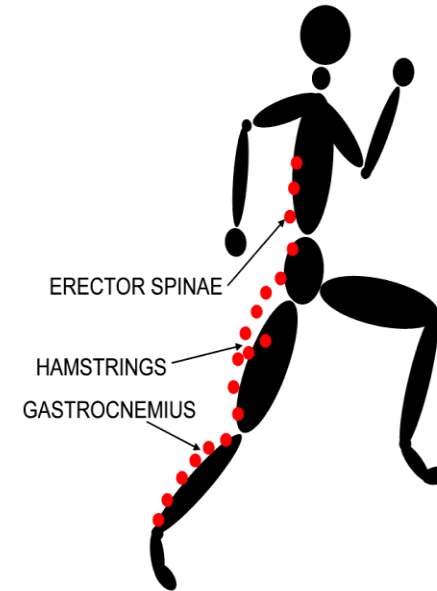
STANCE PHASE



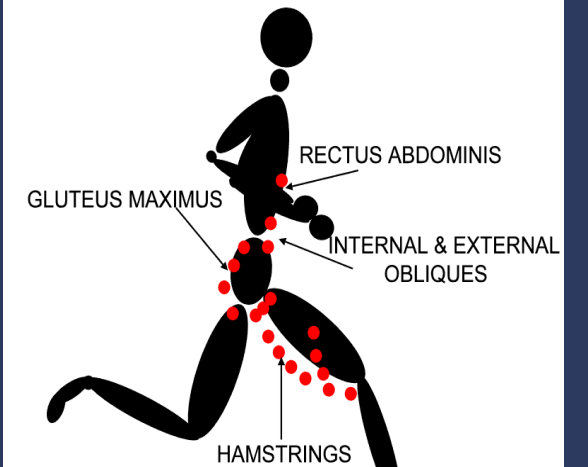
THE RECOVERY PHASE



TOE-OFF



THE FLIGHT PHASE



Max Vo Drills

- Ankling or Dribbles (Great for Injured athletes)
- Heel Kick Runs
- PVC Pipe Runs (Shoulders/overhead)
- Wickets!
- Quick leg drills
 - Single Leg, Alt leg
- Straight Leg bounds (Force Production)
- Speed Bounds

Developing Max Vo

- In and Outs(Sprint Float Sprint)
 - Start shorter and increase distance bi-weekly
- Flying 10-30
- Contrast Work
 - 30 M fly with weight vest break followed by 30m Fly non weight vest
 - Only do with advanced athletes
- Drills
- Wickets
- Every Step Stadium stairs

Find the Right System for your runner

Long to short

Short to Long

Slow to fast

Fast to Faster

Energy Systems

Terminology	Length of Run	Component	Energy System	% of Predicted Performance	Rest Interval Between Reps/Sets
ABSOLUTE SPEED	20-80m	Speed (s) Anaerobic power	Anaerobic Alactic	90-95% 95 - 100%	3-5 / 6-8 min 3-5 / 6-8 min
SPEED ENDURANCE	50-80m	Alactic Short Speed End. (ASSE)	Anaerobic Alactic	90- 95% 95 - 100%	1-2 / 5-7 min 2-3 / 7-10 min
SPEED ENDURANCE	80m	Glycolytic Short Speed End. (GSSE)	Anaerobic Glycolyte	90- 95% 95 - 100%	1 / 3 min 1 / 4 min
SPEED ENDURANCE	0-150m	Speed Endurance (SE)	Anaerobic Glycolyte	90- 95% 95 - 100%	5 - 6 min 6 - 10 min
SPECIAL ENDURANCE I	150-300m	Long Speed Endurance (LSE)	Anaerobic Glycolyte	90- 95% 95 - 100%	10 - 12 min 12 - 15 min
SPECIAL ENDURANCE II	300-600m	Lactic Tolerance (LAT)	Lactic Acid Tolerance	90- 95% 95 - 100%	15 - 20 min Full
INTENSIVE TEMPO	100-600m	Anaerobic Capacity (ANC)	Mixed: Aerobic Anaerobic	80- 89%	30s - 5 / 3-10 min
EXTENSIVE TEMPO	200-800m 100-200m	Aerobic Capacity (AC)	Aerobic Aerobic	40- 79% 60- 79%	45 - 2 min 30s / 2-3 min
CONTINUOUS TEMPO	1600-6400m	Aerobic (AC)	Aerobic	40- 60%	Heart Rate 130-150

Training Set Up

- Simple to complex
- Acceleration → Speed Development → Speed Endurance
- Segment runs → Ins and outs
- In Place Plyos → Power Plyos → Movement Plyos

Absolute Speed Workouts

- GPP

- 3x Stadiums 25 Steps (every other) + 2 x Double leg Hops + 1xSL R/L 15 Steps run 10 steps + 3x Stadiums 25 Steps, 4x20m Hills, 4-6x15 m flat ground sprints. + 5xSLJ, STJ, standing double jumps
- Resisted Runs plus unresisted runs
 - 3 to 1- 3 resisted run to 1 unresisted runs ratio

- SPP

- Runs up to 40m do not exceed 300-400m in volume
 - Ex. 5x20m, 3x30m, 2x40m- can include sleds pushes or pulls also + hurdle hops + standing jumps

- Champ Time

- Runs up to 60m
 - Ex. 3x20m, 4x40m, 2-3x60m + hurdle hops or depth jumps

Speed Endurance runs

- GPP
 - Segment Runs
 - 90-->120-->150 runs
 - 30-30-30
 - 40-40-40
 - 50-50-50
 - 70%-80%-90%
- SPP
 - Ins and Outs
 - 60m-75m-90m-120m
 - Ex. 15m-20m-FT 15-SP 20m
- Champ Phase
 - 1x180,1x120,1x90,1x80 @ 90-95%

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