



Developing Speed & Power in the HS Athlete

Zach Simon



Most important thing your sprinter can do...

- Pick good parents



DNA vs. Hard Work





Training reveals what DNA already knew

- Born with your # of fast twitch/slow twitch muscles and lengths
- Talents and Abilities
- Finding the right event for kids is an Art



Fast/Slow Twitch muscle

- White meat is fast twitch(anaerobic) muscle fibers
 1. Used for quick bursts of activity, such as fleeing for danger, need glycogen, which is stored in the muscles.
- Red or Dark meat is slow twitch(aerobic) muscle fibers
 1. Used for extended periods of activity such as standing or walking, need a consistent energy source
- * Dr. Jason Karp





Fast Twitch Training @ the speed of sport

- **Rate of force development**
- Eccentric Strength Potential is 30-70% greater than concentric strength
- Ground contact time and putting muscles “On-Stretch” in Rapid Ballistic manner
- Force=Mass x acceleration
- $F=M \times A$ or $F=A \times M$



Longevity

- Overtraining is real - Main Focus of your Training Program, *“What do I want to be doing 2 weeks before state...”*
- The Goal is to build **Precision of Movement, Optimal Flexibility, Strength, Endurance, and Mental Stamina**. Working on these components improves fitness and helps build quickness, speed, and power.
- *Point of Emphasis* Sequence of Muscle Firing from the Forefoot
- Muscle Equilibrium & Muscle Elasticity
- Rate of Force Development



Jumpers and Sprinters

- Use a jump rope!
- Running with the jump rope is one of the easier ways to teach foot landing beneath your center of gravity. Be careful with racing though=over striding
- Warm up, Combo workouts, Circuits, Cool down



Simple Leg Explosion Development

- Rim Jumps - 4 sets x 30 seconds @ 2-3 min rest
 1. Land (eccentric)
 2. Transition and Jump again ASAP
- Plyometric Exercise is defined by a .15 sec ground contact



Stretching

- Horses and greyhounds don't stretch before a race, but my dog does stretch when he gets up from a nap
- Warming Up my body or activate muscle, core temperature
- Wearing old school grey cotton sweats, light swishy sweats for hot days or joggers-soccer player polyester to create sweat!
- Conclusion: Doing it apart from the workout is more effective; *treatment*



Warming up

- 400m-800m jog or 2 min jump rope
- Core- Cat/Camel Back, Side Planks, Supermans,
- Skipping and Walking Lunge Stretches
- Hips! Wall Leg Swings and Lying leg Swings
- Strides and Build ups



Dr. Ralph Mann

- Former world record holder and 1972 Munich silver medalist in the 400m Hurdles
- Evaluated every elite USATF sprinter male or female, biomechanically analyzed them
- The Start (especially the first 3 steps, where you can attain 60% top speed) gets you to max velocity.
- Accelerations, wickets, flying sprints, drop in accels



Acceleration

- Projection-Body Angle, Projecting the center of mass through space, covering ground from the very first step.
- Rhythm-Sound
- Rise-reach prime Max Velocity,
Like an Airplane taking off





Starting Block Training

- Angles-90 degree and 120-130 degree
- Foot Placement- 2 steps, 3 steps
- 1st Step you reach 50% of your Max Velocity

-Dr. Ralph Mann, 2007

- Importance of the Head
- Eyes-Focus on a point
- Mistakes- using a mini-hurdle, negative motion, chalk is better





Triplets & Holds



RUN TALL EXERCISE



Put hands against wall. Back up as far as you can with heels on ground. Then rise on toes, lift lead knee, and **FEEL** the power!

NOW -- if you stick out behind



you will note you have **LOST** all your horse-power!



Sleds & Tires, Hills

- Curtis Craig “Running Hills all night!”
- Perfect in Circuits or Combo Workouts
- Short Hills,
 1. Walk back recovery for sprinters
 2. Quartermilers-walk back 50, jog back 50
 3. Distance-jog back recover, for short hills. Long Hills- give them 5 minutes then jog recovery.
- Sled and Prowler push



A Skip, B Skip, C skip

- Is a Coach to Athlete Evaluation to when they can return to 100%
- Walking A's, A-Skip, Running A's(High Knees)
- Walking B's, B-Skip, Running B's(Majorettes)
- Don't miss out on Coaching up A-skip and B-skip, rhythm & sound, ankle & shin angle, arms, relaxation, progression, head position, pushing, pulling, etc.



Pat Henry & Vince Anderson

Acceleration Ladder

- Wickets, Mini Hurdles
- Acceleration Patterns for a 13.3-10.10 100m
- Jumpers Pattern for 17'-28-6" LJ
- 0 is the starting line, hold down the tape and mark
- 1st hurdle placement is 2'-6"-3'-9". Each hurdle after that is +6 +5,+4,+3,+1, 0
- 2nd hurdle will be between 5'5"-8'-0".
- JV kid needs starts on +5
- Varsity 6+
- Use chalk, measuring tape, bit of rope, and Accel Chart

