

Training Considerations for the Pole Vault

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Stimulus Response

- Specific Adaptation to Imposed Demands (SAID)
 - Body creates specific adaptations based on the stimulus (demand) that it receives
 - High neuromuscular demands lead to neuromuscular adaptation
 - High metabolic demands lead to metabolic adaptation
- The time it takes for different systems to adapt is different
 - Nervous system: 4-6 weeks
 - Muscular and endocrine systems: 6-10 weeks



Strength Demands of Pole Vault

- Main goal of jump is to maximize kinetic energy → maximizing runway speed
 - Acceleration, speed, power, lower body strength
- Strong plant is needed for adequate penetration and maximizing elastic energy of the pole
 - Upper and lower body strength and power
- Body control is needed to maintain proper positioning during swing and finish
 - Core strength
- Upper body strength important for finish



Skill Demands of the Pole Vault

- Coordination, strength, and body control is needed to perform several skills proficiently
 - Sprinting with proper mechanics while carrying a pole
 - Dropping the pole in a controlled manner at the correct time
 - Swinging to wrap the top of the pole while simultaneously moving the pole forward
 - Finishing off the top of the pole



Training Prescription for the Pole Vault

- Acceleration
 - Short sprints up to 30-40m
 - Resisted runs: hills, sled pulls, harness runs
- Absolute speed
 - Short sprints of 40-80m
 - Variable speed runs (sprint-float-sprint)
 - Overspeed: towed sprints, downhill running
- Speed endurance
 - Short: 40-80m and long: 80-150m
 - Also develops coordination



Training Prescription for the Pole Vault

- Extensive tempo
 - Runs $\geq 100m$ @ 70-80% to improve aerobic power
- Intensive tempo
 - Runs $\geq 80m$ @ 80-95% to improve anaerobic power
- Multijumps (plyometrics) for reactive strength
- Power lifts (cleans, snatches, clean and jerk)
 - Acceleration, speed, power, reactive strength
- Static lifts (bench, squats, step-ups, etc.)
 - Absolute strength
- Regional lifts (bodybuild lifts, circuit weights, etc.)
 - Recovery, diversity of movement, injury prevention



Training Prescription for the Pole Vault

- Skill development
 - Track drills, runway drills, sand pit take offs, slide boxes, short pole drills, rings drills
- Body control
 - Rings drills, rope drills, gymnastics drills, high bar drills
- Incorporate skill development and body control training on non-vaulting training days

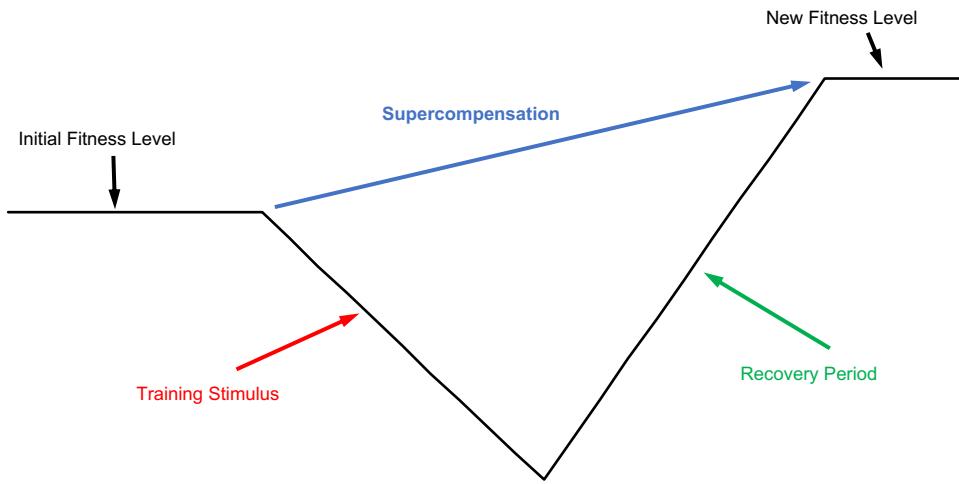


Training Order

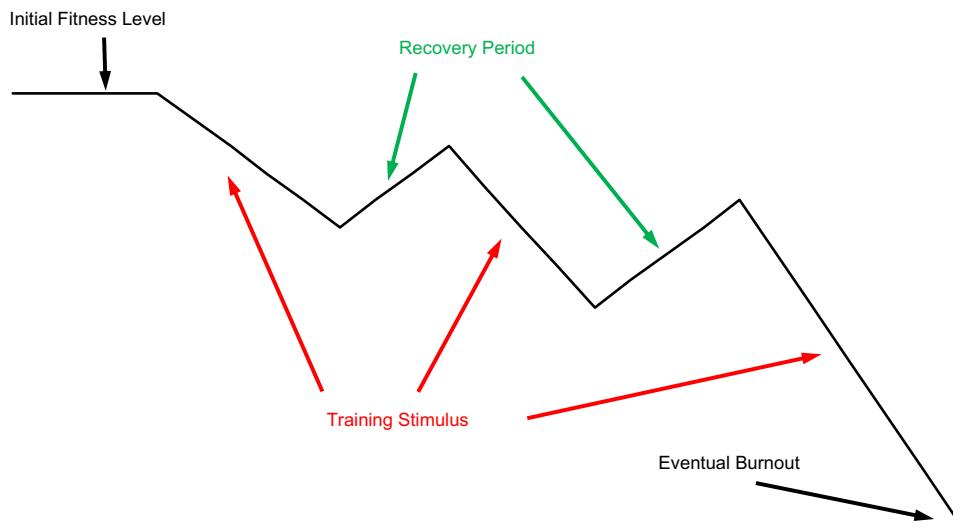
- Order of exercises in a training session is important
 - Exercises done first will get the most benefit
- Always prioritize technique training first
 - Practice jumping technique before doing sprinting and/or lifting
- Order of exercises focused on speed
 - Speed: (1) sprinting, (2/3) jumps or power lifts, (4) static lifts, (4) medicine ball throws



Appropriate Training



Inappropriate Training



Recovery

- Recovery from training is how the body adapts and improves
 - Without proper recovery, the body will not achieve the highest amounts of gains
 - Eventually can lead to excessive amounts of damage and/or burnout
- Complete recovery can take anywhere from 1-3 days
 - Depends on the intensity and volume of training session
 - Neuromuscular fatigue typically lasts longer than metabolic fatigue



Injury Prevention

- Improving technique (motor skill and coordination)
 - May prevent the body from being in positions that are at a high risk for injury
- Strengthening the body (absolute and reactive strength)
 - Increases musculoskeletal tissue capacity
- Providing adequate rest
 - Helps the body recover and prevents tissues from breaking down over time
 - Injuries typically happen when an athlete is in a fatigued state



Training Design

- Warm-up and cool-down used for injury prevention
 - Exercises that improve mobility
 - Therapeutic exercises to promote recovery and limit unwanted hypertrophy: ice bath, sauna
- Training plans can be structured to prevent injuries
 - Balancing hard and easy training sessions
 - Proper timing and amount of recovery
 - Hard days followed by recovery days
 - Highest intensity days may need multiple recovery days



Training Design

- Need to appropriately prescribe volume and intensity
 - Volume high early season and low late season
 - Intensity low early season and high late season
 - Recommend not increasing training and/or intensity more than 10% per week
- Recommend an unload or “rest” week once every 3-5 weeks
 - Lower all volume by 50%, do not lower intensity
 - Provides physical and psychological rest



Training Design: Early Season

- General and specific preparation phases
 - Higher volume, lower intensity
- Day 1 (high intensity): acceleration, horizontal multijumps, powerlifts, static lifts, multithrows
- Day 2 (recovery): vaulting session, bodybuild lift
- Day 3 (medium-high intensity): acceleration, bounding, powerlifts, static lifts, multithrows
- Day 4 (recovery): vaulting session, general strength circuit, mobility work, core and balance work
- Day 5 (aerobic or anaerobic power): extensive or intensive tempo, general strength circuit



Training Design: Middle Season

- Pre-competition and competition phases
 - Medium volume, medium intensity
- Day 1 (high intensity): top speed, vertical multijumps, powerlifts, static lifts, multithrows
- Day 2 (recovery): vaulting session, bodybuild lift
- Day 3 (high intensity): acceleration, bounding, powerlifts, static lifts, multithrows
- Day 4 (recovery): vaulting session, general strength circuit, mobility work, core and balance work
- Day 5 (high intensity): speed endurance, general strength circuit



Training Design: Late Season

- Competition and championship phases
 - Low volume, high intensity
- Day 1 (high intensity): top speed, vertical multijumps, powerlifts, static lifts, multithrows
- Day 2 (recovery): vaulting session, bodybuild lift
- Day 3 (high intensity): speed endurance, powerlifts, static lifts, multithrows
- Day 4 (recovery): vaulting session, general strength circuit, mobility work
- Day 5 (high intensity meet prep): acceleration, powerlifts, multithrows



Training Session Design: Pole Vault

- Week 1: warm-up drills, 3-step runway drills
- Week 2: warm-up drills, 3-step runway drills, 4-step approach work
- Weeks 3-4: warm-up drills, 3-step runway drills, 5-step approach work, review 4-step approaches
- Weeks 5-6: warm-up drills, 3-step runway drills, 6-step approach work, review 4-step approaches
- Weeks 7-9: warm-up drills, 3-step runway drills, 7-step approach work, review 4 or 5-step approaches
- Weeks 10-12: warm-up drills, 3-step runway drills, 8-step approach work, review 4 or 5-step approaches



Skill Development: Wickets



Skill Development: Sequence



Skill Development: Slide Boxes



Skill Development: Rings



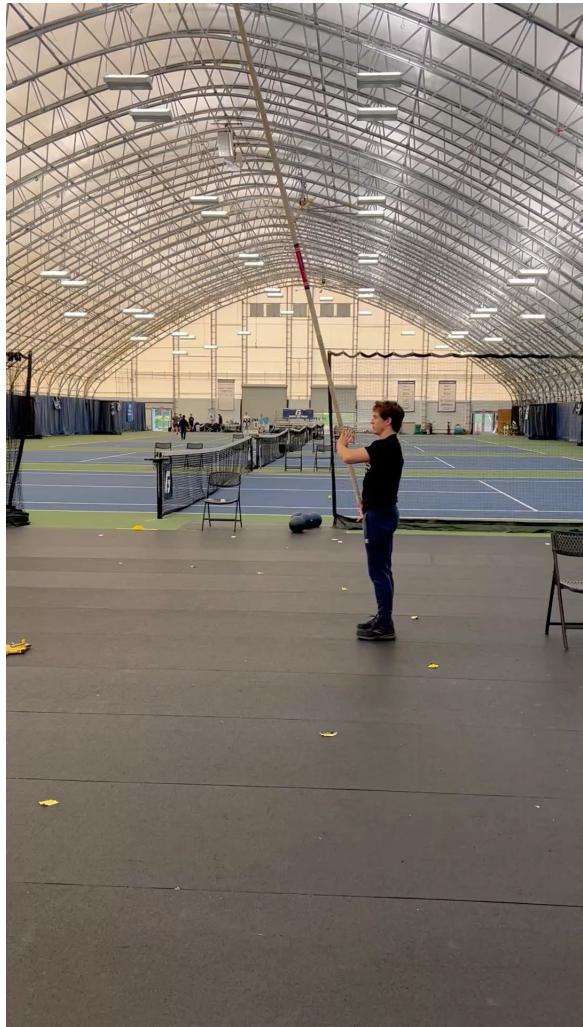
Skill Development: Ropes



Skill Development: Pulley



Skill Development: Track Drills



Skill Development: Track Drills



Skill Development: 1-Hand Drill



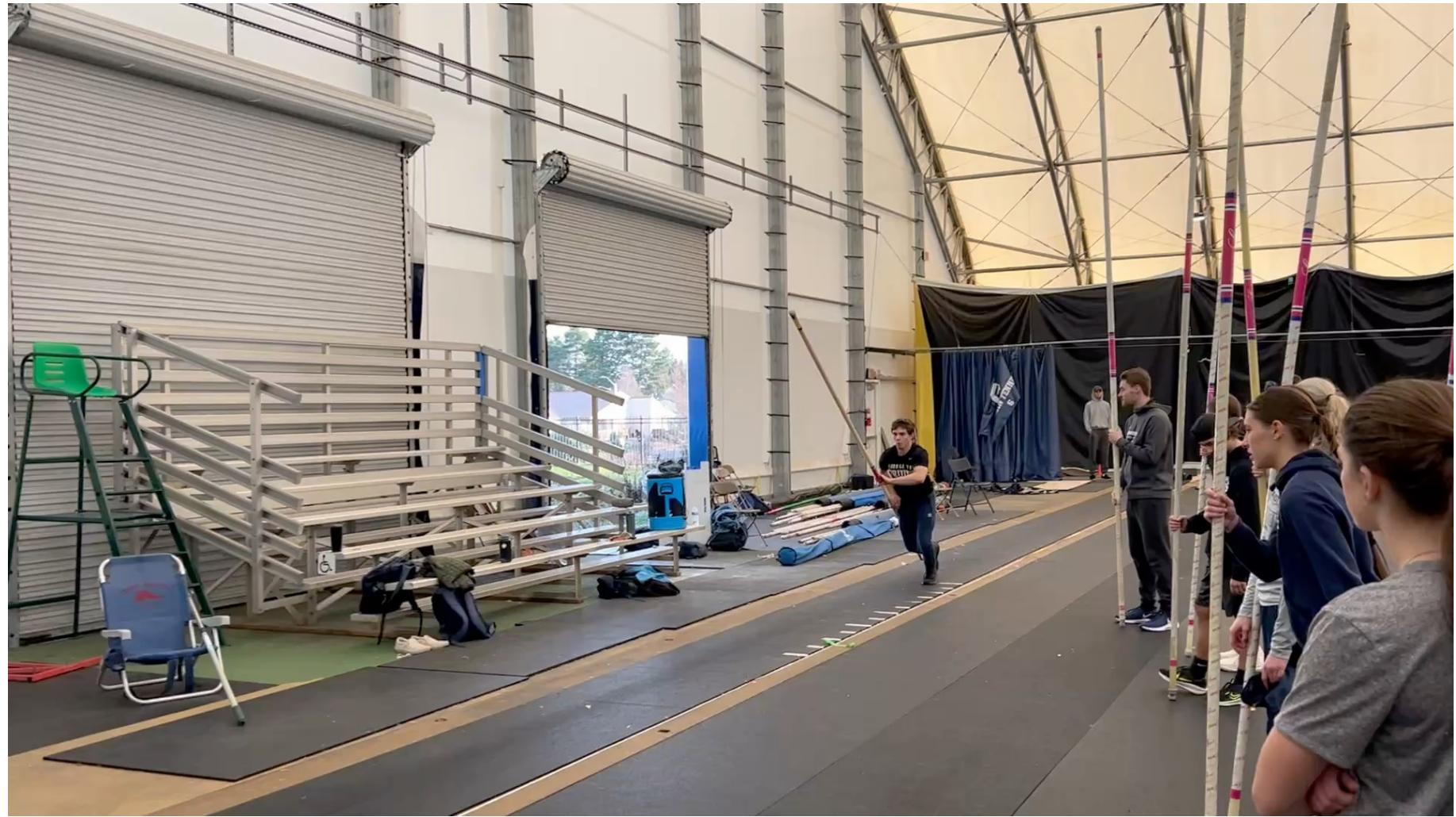
Skill Development: 2-Hand Drill



Skill Development: Swing Drill



Skill Development: Swing and Turn Drill



Skill Development: Drive-Ins



Skill Development: Distance Vaults



Training Considerations for Pole Vault

- Vaulters can run the 100m for acceleration, speed, and speed endurance training
- Vaulters can train with sprinters with slight modifications to volume
- Vaulting can pair well with long jump and hurdling due to similar takeoffs
 - Good for diversity of movement and neurological skill development

