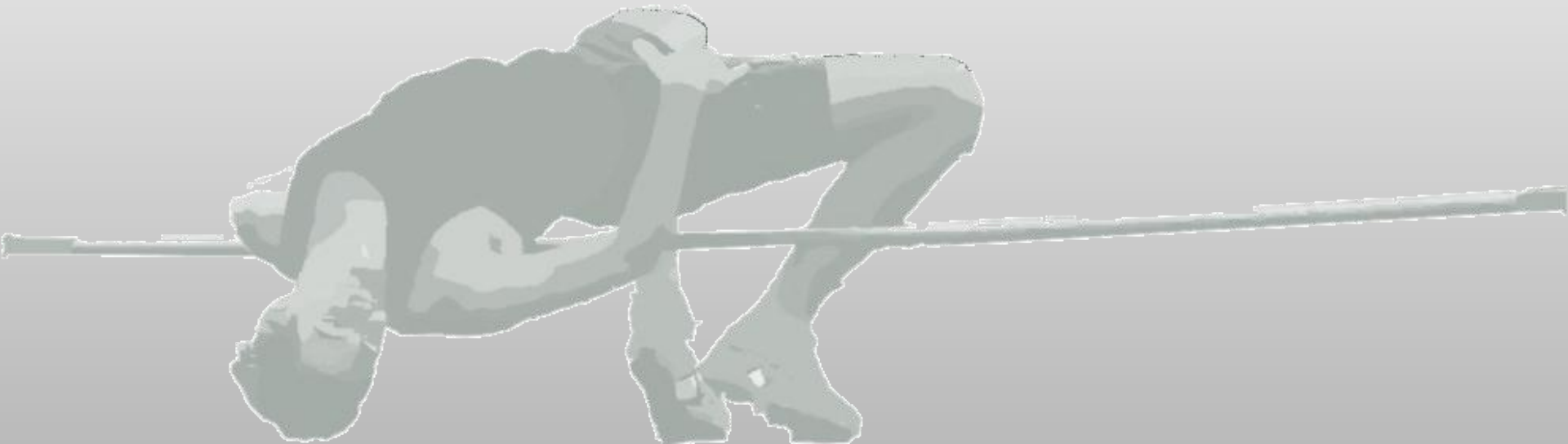


SESSION 3: HIGH JUMP PERFORMANCE THROUGH SPEED/POWER TRAINING

Matt Burns



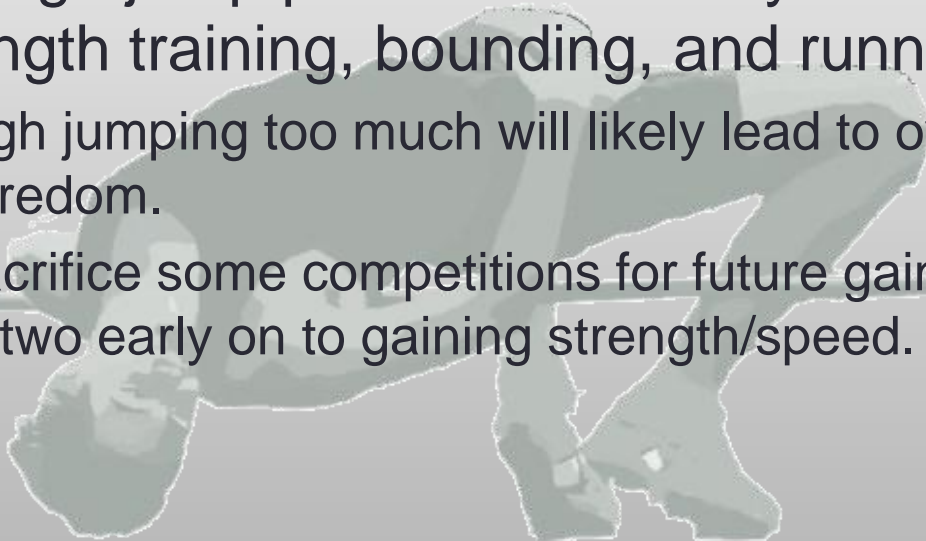
Overview

- Importance of Balanced Training
- Strength Training
- Bounding
- Running
- A Week of Training



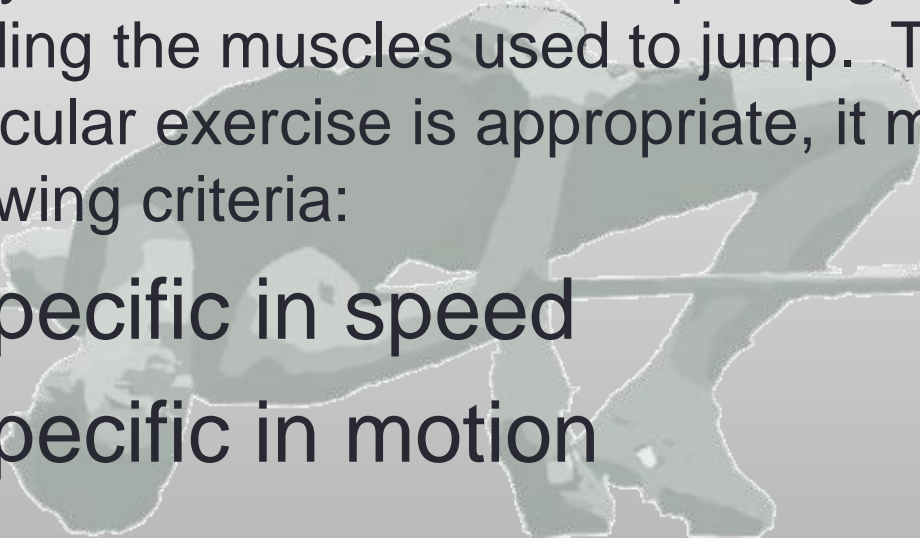
Importance of Balanced Training

- High jump technique work builds consistency in the jump but does not increase the vertical ability of the jumper. Practicing only high jump puts the jumper at risk of stagnating.
- In a 5-day training week, only 2 days should be spent at the high jump pit. The other days should be spent strength training, bounding, and running.
 - High jumping too much will likely lead to overuse injuries and boredom.
 - Sacrifice some competitions for future gains by committing a week or two early on to gaining strength/speed.



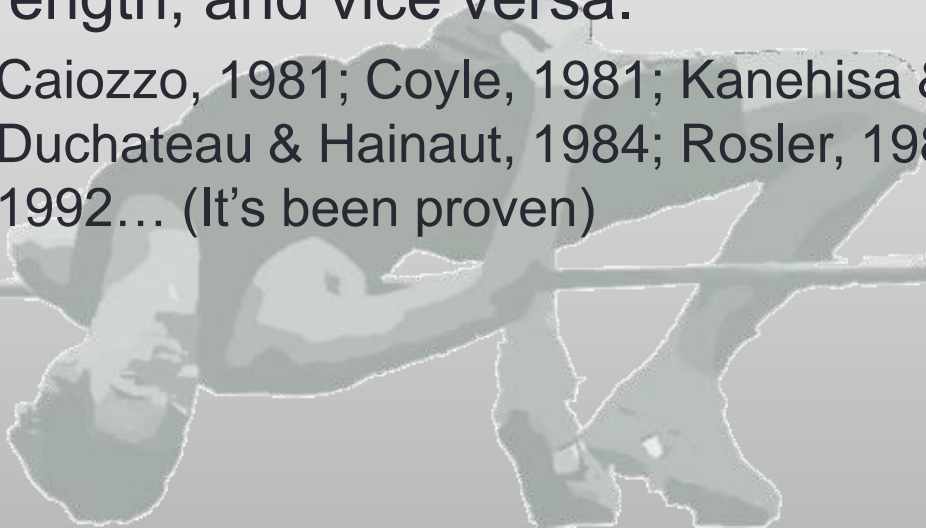
Strength Training

- Some lifts/exercises will not directly improve jumping ability but should be performed to help prevent injury. These lifts will not be discussed here, but are important.
 - Abdominals/Back
 - Hamstrings
- Many lifts are suitable for improving high jump ability by building the muscles used to jump. To decide if a particular exercise is appropriate, it must meet the following criteria:
 - Specific in speed
 - Specific in motion



Strength Training – Specific in Speed

- The high jump requires explosive strength, so all exercises should be explosive, assuming a good strength base exists.
 - “Training with high velocity movements increases high velocity strength relatively more than low velocity strength, and vice versa.”
 - Caiozzo, 1981; Coyle, 1981; Kanehisa & Miyashita, 1983; Duchateau & Hainaut, 1984; Rosler, 1986; Narici, 1990; Sale, 1992... (It's been proven)

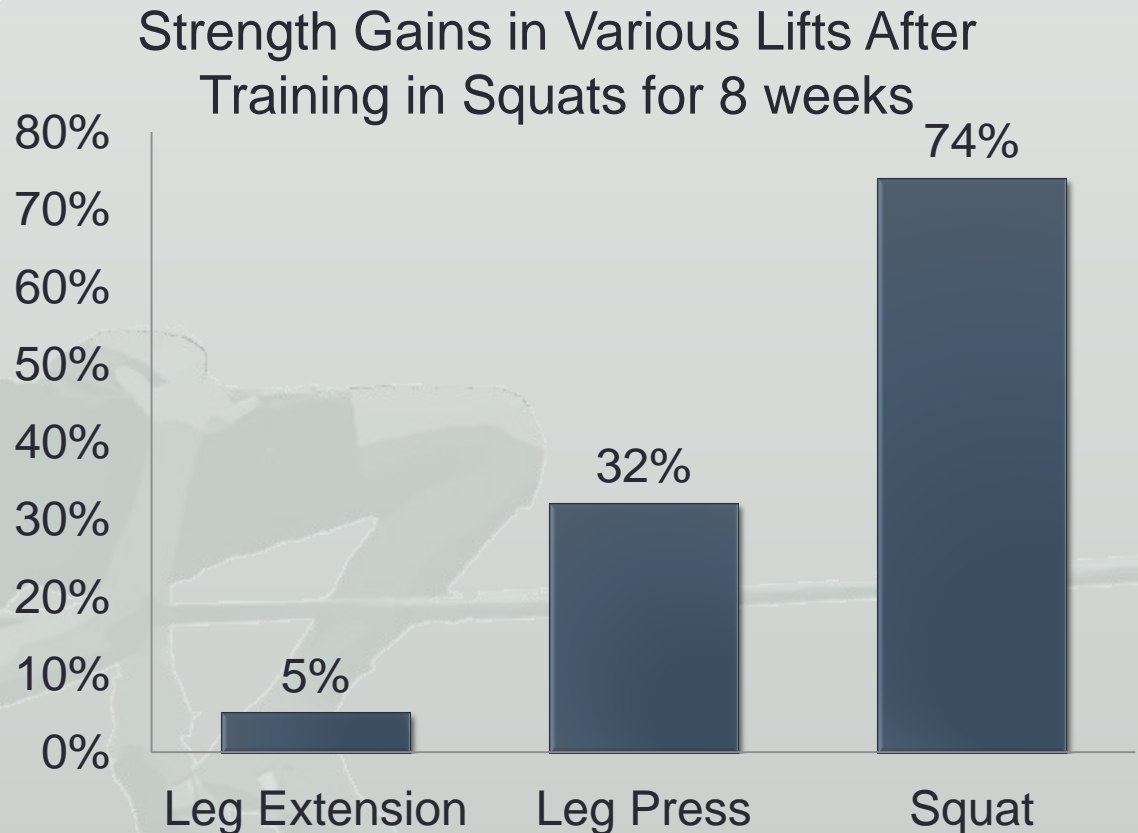


Strength Training – Specific in Motion

- Every lift should mimic (as much as possible) the movements necessary in high jumping.

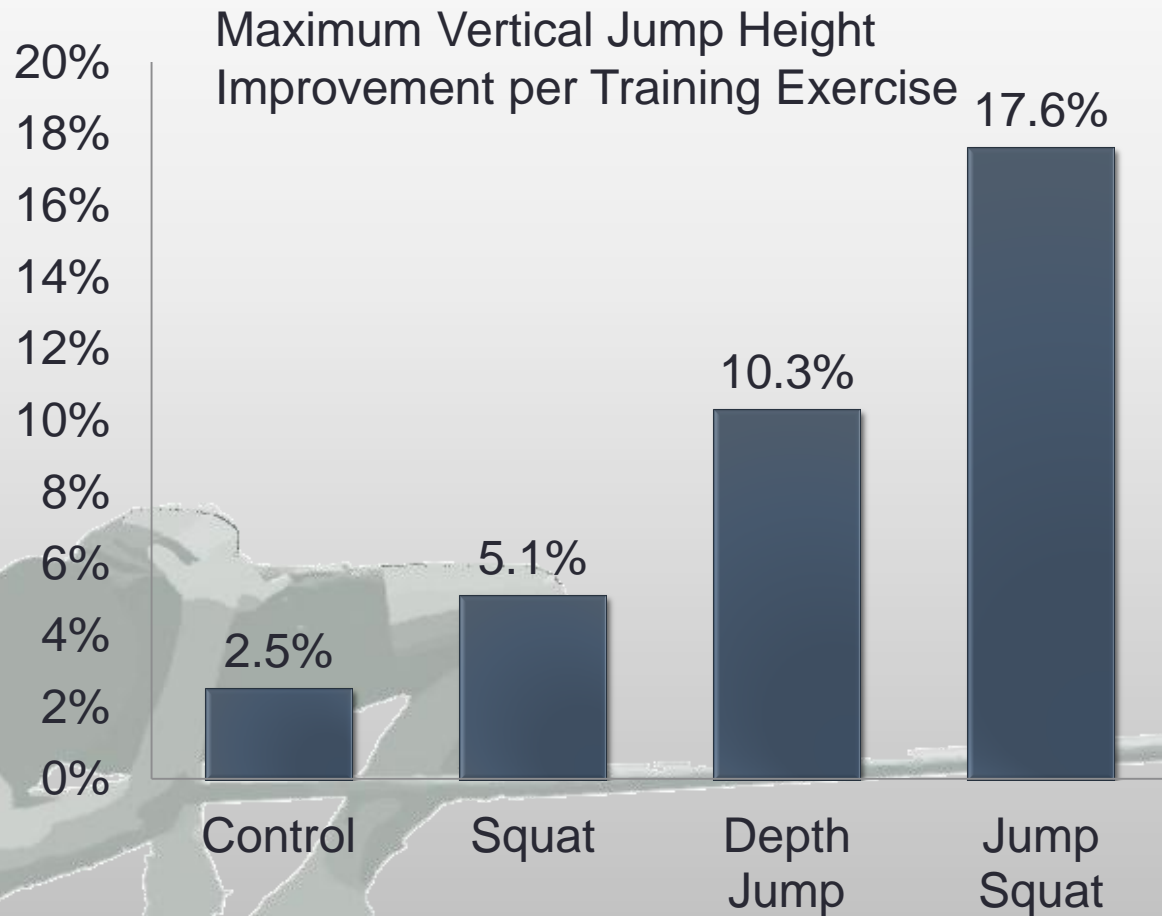
“Increases in strength depend on how similar the test is to the training exercise.”
– Sale '92

In the HJ, the test is the jump, so the training exercise should be as similar to the jump as possible.



Strength Training – Squat

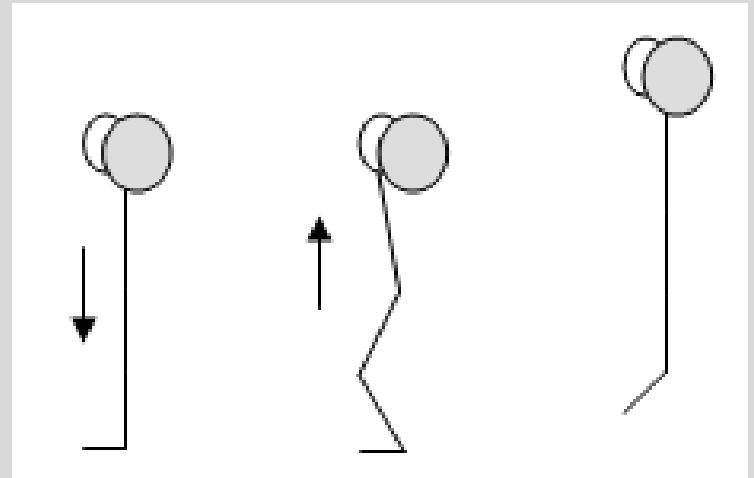
55 subjects with 1+ year of weight training experience were divided into 4 groups and trained 2x/week for 10 weeks in their assigned exercise.



From “The optimal training load for the development of dynamic athletic performance” by Greg J. Wilson et al. Published in Medicine and Science in Sports and Exercise 1993.

Jump Squat Training

- All jump squats are performed at 30% of the athlete's single repetition squat maximum. I recommend calculating the single rep max value from a 3 or 5 repetition max via a conversion table.
- Start at a standing position, quickly lower weight to a height that will result in the highest jump (max power), and then power up to jump as high as possible.
- Each jump-squat repetition should be treated separately. There should be ~3 seconds between reps.



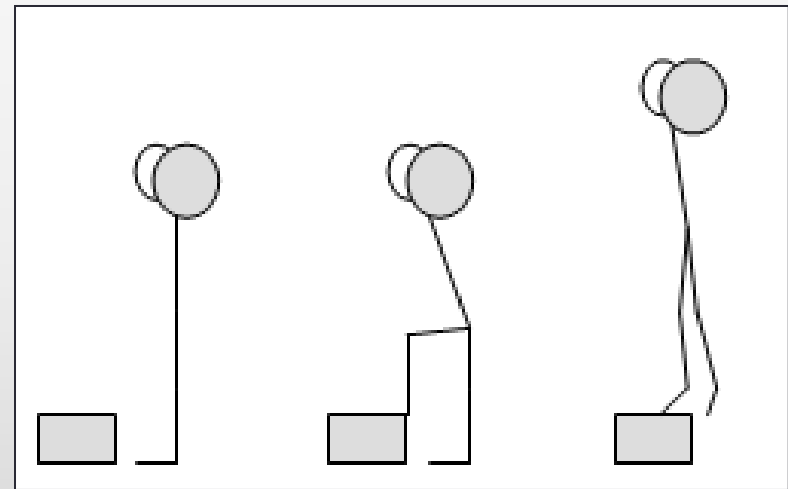
Jump Squat Training Plan

- Week 1: 2x/week 3x6 @ 20% max squat
- Week 2: 2x/week 3x6 @ 25% max squat
- Week 3: 2x/week 4x6 @ 30% max squat
- Week 4: 2x/week 5x6 @ 30% max squat
- Week 5 to 8/9/10*: 2x/week 6x6 @30-35% max squat, increasing weight slightly from 30% as weeks go on, but do not go above 35% of the week 1 measured max squat.
- Do not perform any reps the week before the most important competition (state, conference). And decrease volume to 3x6 2 weeks before that competition. Also, in weeks 5-8/9/10, decrease to 3x6 on day 2 to rest for important invitational meets.

*Depending on the length of the schedule, tune this to a 8, 9, or 10 week program.

Strength Training - Other

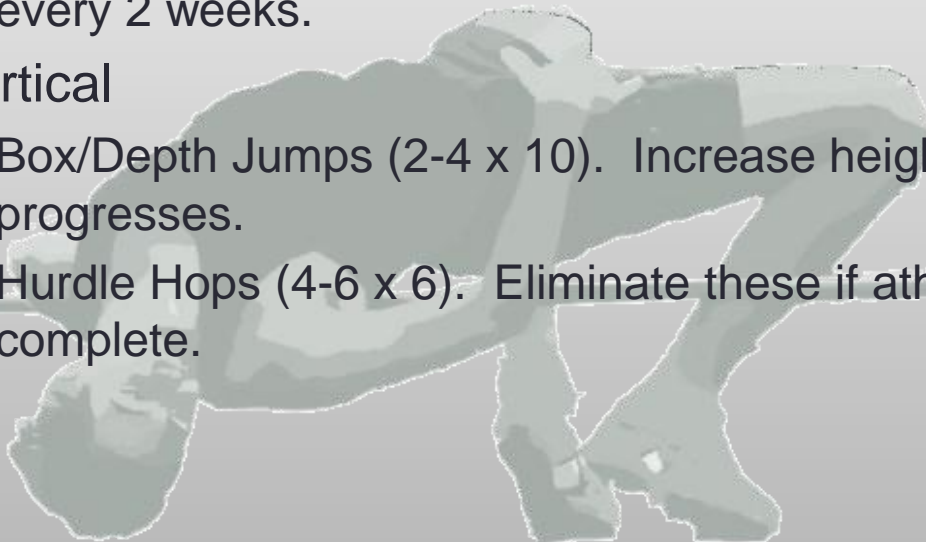
- **Step-Up:** 1x/week, 3x10 @ a weight that the exercise can be performed quickly but still be fatigued after 10 reps.



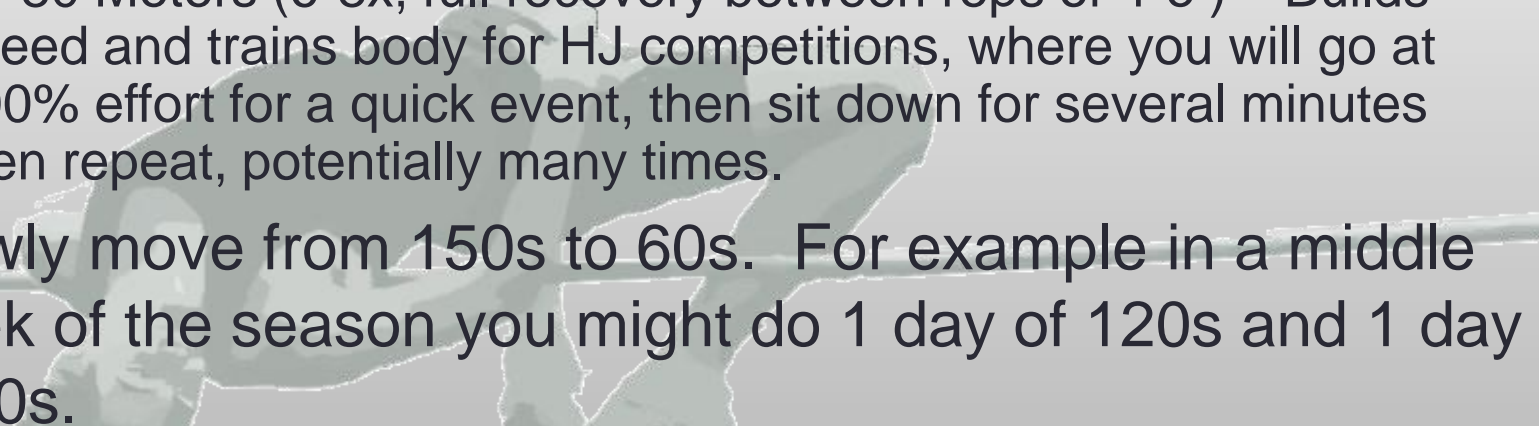
- **Olympic Lifts (Clean):** 2x/week, 4x6 @ difficult weight (4x4 once big competitions start). Perform first in weight-lifting session to ensure maximal explosive power is available.
- **Hamstring Curl:** 2x/week for leg strength symmetry
- **Abdominal/Core:** 2-3x/week for strong HJ layout

Bounding (1x/week)

- All bounding should be explosive. Goal is minimum contact time with the ground. Athlete should anticipate the contact and “respond” immediately before.
 - Horizontal (8-10 x 30m various exercises)
 - Single Leg, Alternating Leg, LL-RR
 - 10 L-R bounds for distance. Record distance and try to increase record every 2 weeks.
 - Vertical
 - Box/Depth Jumps (2-4 x 10). Increase height of box as season progresses.
 - Hurdle Hops (4-6 x 6). Eliminate these if athlete cannot safely complete.

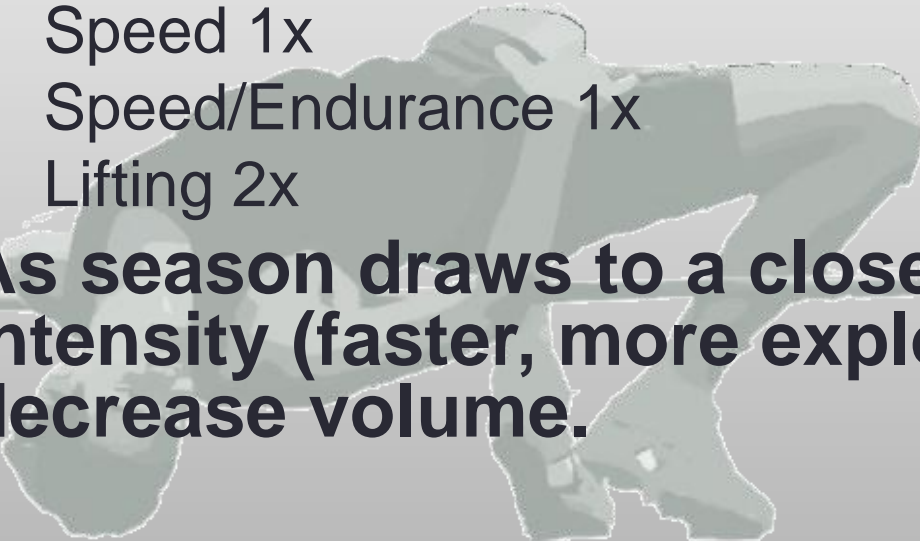


Running/Speed Work (2x/week)

- Off Season – build endurance
 - 150-200 Meters (e.g. 2x4x150 @80% 1.5'/rep 5'/set - increase recovery/speed as season approaches)
 - Early Season (first 5-6 weeks)
 - 100-150 Meters (e.g. 2x4x150 @90% 2.5'/rep 5'/set)
 - Late/Competitive Season (last 5-6 weeks)
 - 60-80 Meters (6-8x, full recovery between reps of 4-5') – Builds speed and trains body for HJ competitions, where you will go at 100% effort for a quick event, then sit down for several minutes then repeat, potentially many times.
 - Slowly move from 150s to 60s. For example in a middle week of the season you might do 1 day of 120s and 1 day of 80s.
- 

Forming a Workout Plan

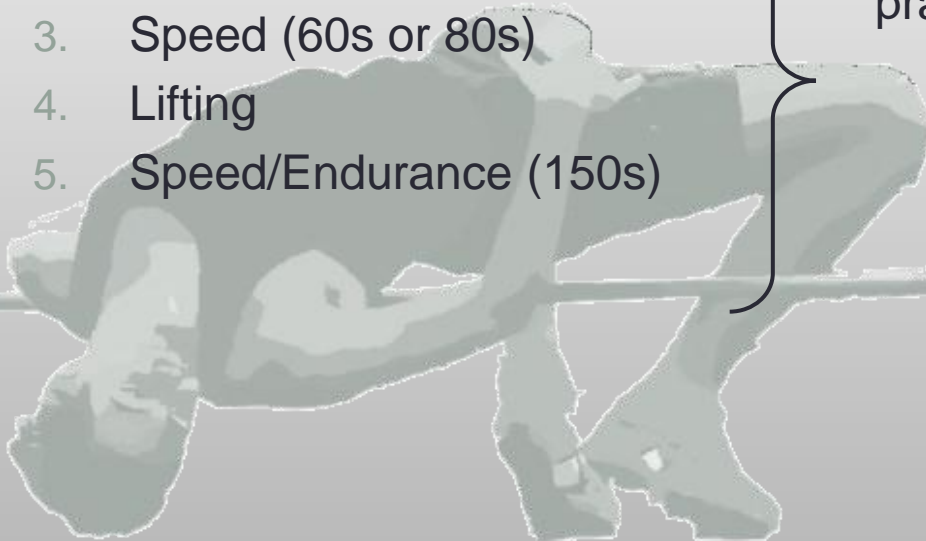
- Quality is highest early in the week – technical HJ work should be done then.
- Goal for the week would be to fit all of the following in:
 - HJ technical work 1-2x
 - Bounding – 1x vertical, 1x horizontal
 - Speed 1x
 - Speed/Endurance 1x
 - Lifting 2x
- **As season draws to a close, increase intensity (faster, more explosive) and decrease volume.**



Forming a Workout Plan

- The day before a meet there should be no jumps taken – light track warm-up only.
- Order to perform each exercise during a workout should progress from fastest to slowest activity.
 1. High Jumping
 2. Bounding
 3. Speed (60s or 80s)
 4. Lifting
 5. Speed/Endurance (150s)

(Not all in a single practice of course)



Sample Practice Week – Saturday Competition

- Monday – HJ, Speed/Endurance
- Tuesday – Bound, Lift
- Wednesday – cross-train (e.g. swim)
- Thursday – HJ, speed, explosive lifting
- Friday – pre-meet warm-up
- Saturday – compete
- Sunday - Rest



Sample Practice Week – Friday Competition

- Monday – HJ, Speed/Endurance
- Tuesday – Bound, Lift
- Wednesday – HJ, speed
- Thursday – “pre-meet” (warm-up only)
- Friday – compete
- Saturday – Rest
- Sunday - Rest



Where to Get More Information – *HJ* *Training*

- Wilson, Greg J., Robert Newton, Aron Murphy, and Brendan Humphries. “The optimal training load for the development of dynamic athletic performance.” Medicine & Science in Sports & Exercise, Vol. 25, No. 11, November 1993. 1279-1286.
- Moura, Nelio Alfano and Tania Fernandes de Paula. “Training Principles for Jumpers: Implications for Special Strength Development.” New Studies in Athletics, Volume 16, Issue 4, 2001. 51-61.
 - The New Studies in Athletics issues are archived at <http://194.213.2.7/wps/portal/iaaf>

