

## The Mechanics of the High Jump And There Dictates To Training

### TECHNICAL ASPECTS OF THE HIGH JUMP

1. The High Jump is one continuous RHYTHMIC motion.
  - A. The High Jump Approach
    - i. Uniqueness in the Approach
      - a. Only Approach with a curve for a specific reason
    - ii. Problems in the Approach  
RUNNING MECHANICS
      - a. Start of the Approach must be consistent
      - b. Purpose of the Straight portion is to generate horizontal velocity
      - c. Drifting out to set up the curve
      - d. Transition into the curve (Watch for Post Pattern)
      - e. Running in the Curve is different than the Straight (More like a Hurdler)
      - f. Getting the feet on the ground in the last 3 steps (Decrease flight time)
      - g. Getting the Arms into the Jump (Vlasic's Set-Up)
      - h. Different styles of Penultimate Step (Still must be active)
        - i. Stepping Down the Bar (Cueing the Shoulders thur Curve & Takeoff)
      - j. Takeoff Position
    - iii. Purpose of the Approach
      - a. To allow the jumper to generate as much vertical velocity as possible
      - b. Establishing the Approach
      - c. Determining the Curve Width
      - d. Drawing out the Curve
  - B. Takeoff Position
    - i. Arms and Drive Leg in the Takeoff
      - a. Two-thirds of the Height Jumped is the height of COM at Takeoff  
This is based on the Position of the Arms & Drive leg at Takeoff
  - C. Flight and Position over the Bar
    - i. Parabolic Curve
      - a. The depth of the Curve is based largely on Horizontal Speed
      - b. The height of the curve is the product solely of vertical velocity
      - c. The Drive Leg is Held and Takeoff Leg brought to it
      - d. Shoulders Down, Hips Up
      - e. How to clear the feet

### PHYSICAL ASPECTS OF THE HIGH JUMP

2. Strength Training (Training CNS to Recruit Muscle Cells)
  - A. Rate of Force Development
    - a. When force application is .30 or Less, RFD is more important than Maximum Strength
    - b. Takeoff time in the HJ is .17-.19. Maximum Force is developed in .44
    - c. How to Develop RFD (3x3 @ 90% 5 min bet sets 4 times a week)  
Maintenance 2
    - d. Maximally fast bursts of muscle action against high loads

- i. Relative Strength Levels
  - a. Back Squat & Clean 1RM added together divided by Body Weight
  - b. Males should be 1.75-2.50 on BS & 1.20-1.50 Clean (Steffan Holm)  
Females should be 1.25-1.65 BS & .80-1.10 Clean
  - c. The goal is to get strength per pound of body weight as high as possible
- B. Golgi Tendon (What it does)
  - i. Training Methods for Improving the Myotatic Stretch-Reflex Mechanism
    - a. Rebound Jumps
    - b. Box Heights (Speed X Force = Power)
    - c. Sets, Reps and Rest for Rebound Jumps
    - d. Depth Jumping (ONLY FOR EXPERIENCE ATHLETE-High BS Str.)
    - e. Once every 10-14 Days only when the athlete is Rested
    - f. Height 6-10'; 3-5 Reps per session with 5-10 min bet Reps
- C. Using Strength Training to Teach the CNS to recruit muscle cells

**WHAT THE TECHNICAL AND PHYSICAL ASPECTS OF THE HIGH JUMP  
TELL US ABOUT TRAINING**

- 3. Objective is the have Males Jump 15-18" Over Their Head and Females to Jump 4-6" Over Their Head
  - A. The High Jump is 90% Approach
    - i. Perfecting the Approach
  - B. Converting Horizontal Speed into Vertical Velocity
    - i. Increasing Vertical Ground Reaction Forces
  - C. Strength Training for Improving Rate of Force Development
    - i. Maximizing the CNS Recruitment of Muscle Cells

**STRUGGLE AND EFFORT**-Athlete must understand these are the two requirements to achieve athletic success.