What is the most direct means to achieve strength gains specific to the demands of jumping events?”

Dave Kerin

- Introduction

- Rate of Force Development issues

- Are Plyometrics truly “specific” training?

- The Stretch Shortening Cycle (SSC) and Counter Movement Jumps (CMJ)

- Eccentric Strength as the prime facilitator in jumps

- Eccentric Specific Training

- The case for Depth Landings

- Additional Discussion
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Some researchers of note:

Intended rather than actual movement velocity determines velocity-specific training


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Drop jumping. II. The influence of dropping height on the biomechanics of drop jumping

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Effects of muscle strengthening on vertical jump height: a simulation study


Propulsion forces as a function of intensity for weightlifting and vertical jumping

Electromyographic and force production characteristics of leg extensor muscles of elite weightlifters during isometric, concentric and various stretch-shortening cycle exercises.

The stretch-shortening cycle and human power output.

Utilization of stored elastic energy in leg extensor muscles by men and women.


Involvement of eccentric muscle action may optimize adaptations to resistance training

Developing explosive muscular power: Implications for a mixed methods training strategy

Short-term ballistic resistance training in the pre-season preparation of elite volleyball players


Training for power events  Schmidtbiedler, D

Neuronal adaptation and increase of cross-sectional area studying different strength training methods.

The Importance of Anaerobic Glycolysis and Stiffness in the Sprints (60, 100, and 200M)
Each step gets more important. Along with inward lean from running the curve, the hips need to lead the shoulders into the plant foot. Lower onto the Penultimate step with a full foot ground contact and maintain body lean.

Start the curve on #5 with a slight toe-in of the foot. They need to be upright (out of sprint lean) to be able to enter the curve correctly. Poor curve entry causes problems at the Penultimate & Plant.

Forward rotation & coming out of lean, along with a low entry into the plant, results in a more vertical takeoff, less travel along the bar & a higher jump landing deeper in the pit.

Enter the plant:
Low and with inward lean
Hips leading the shoulders slightly

RUNNING THE CURVE CORRECTLY ISN'T COMFORTABLE
Cues: "Run Tall" and "Push out against the curve"
Too late to try and accelerate now. If they try to, they stand up and lose the lean that comes from proper curve running. Big outside arm actions and lesser inside arm actions just like on an indoor track race.

4 Good Pushes From The Start
Cue: Push,Push,Push,Push
Similar to sprint mechanics, at the start thru first 4 steps. Stride lengths grow as a result of acceleration gained from bigger pushes. Be careful not to mimic "style quirks" seen in some elite athlete's approach runs.

Starting left foot forward, a 10 step run begins with the right foot as #1