Utilizing Mechanical Advantages in the Weight-room

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Simplicity is the key!

Write & Implement the weight-room Workouts

Needs Analysis Protocol

All about performance: paid to produce

Daily max % is not always the total Max %

Let the Athletics Trainers work the ‘Prehab’ phase
SPECIFIC ADAPTATIONS TOWARD IMPROVEMENT OF PERFORMANCE

- EXERCISE OVERLOAD
- SPECIFIC TRAINING PROTOCOL
- CONTROL VOLUME & INTENSITY
- INDIVIDUALIZED TRAINING PROGRAM
Theory of super-compensation:

Following the restoration period the level of the biochemical substance (hormones) increases above the initial level.

Effects of training:

- Acute - immediate
- Delayed
- Partial
FUNDAMENTAL CONCEPTS OF TRAINING THEORY
OVERLOADING CYCLE OF THE SUPER-COMPENSATION THEORY

✓ 1-2-3 = WORKOUT SESSIONS OR MICROCYCLES
✓ FIRST 3 MODULES’ REST IS TOO SHORT = FATIGUE
✓ 3-4 MODULE’S REST IS LONGER AND OPTIMAL FOR THE SITUATION
✓ NEXT CYCLE OR MODULE BEGINS AT A BETTER ATHLETE FITNESS LEVEL
STRENGTH EXERCISES MUST RESEMBLE THE TYPE OF RESISTANCE FOUND IN JUMPING EVENTS

Detrimental to the efficiency of strength training

EXPLOSIVE STRENGTH: ABILITY TO PRODUCE MAXIMAL FORCES IN MINIMAL TIME

Strong people do not necessarily possess explosive strength
Performance Specific Strength

Highest forces are generated during eccentric muscular action.

Stretch-shortening cycle (plyometric training)

Improving flexibility during strength development will result in great muscular force production.
Multi joint Exercises

Single Leg/Arm Exercises

Force production & optimal angles

Power output - Central Gear: HIPS
(Greek: \( \iota \sigma \chi \iota \circ = \text{power} \))
The principle behind PAP is that prior heavy loading, induces a high degree of central nervous system stimulation, resulting in greater motor unit recruitment and force, which can last from five-to-thirty minutes (Chiu, Fry, Weiss, et al., 2003).
**BRIDGING THE WEIGHT-ROOM AND TRACK**

**Dr Chu’s 25m hop testing**

<table>
<thead>
<tr>
<th>% Rank</th>
<th>Females (sec)</th>
<th>Males (sec)</th>
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<tbody>
<tr>
<td>91-100</td>
<td>3.13 - 3.75</td>
<td>2.70 - 3.25</td>
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<tr>
<td>91-101</td>
<td>3.76 - 4.50</td>
<td>3.36 - 3.90</td>
</tr>
<tr>
<td>91-102</td>
<td>4.51 - 5.70</td>
<td>3.91 - 5.00</td>
</tr>
<tr>
<td>91-103</td>
<td>5.71 - 6.90</td>
<td>5.01 - 6.10</td>
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<tr>
<td>91-104</td>
<td>6.91 - 8.15</td>
<td>6.11 - 7.20</td>
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<td>91-105</td>
<td>8.16 - 8.90</td>
<td>7.21 - 7.90</td>
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<tr>
<td>91-106</td>
<td>8.91 - 9.45</td>
<td>7.91 - 8.40</td>
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<tr>
<td>91-107</td>
<td>9.46 - 10.05</td>
<td>8.41 - 8.95</td>
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<tr>
<td>91-108</td>
<td>10.06 - 10.34</td>
<td>8.96 - 9.25</td>
</tr>
<tr>
<td>91-109</td>
<td>10.35 - 10.70</td>
<td>9.26 - 9.60</td>
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<table>
<thead>
<tr>
<th>Duration of the exercise</th>
<th>Intensity of the exercise</th>
<th>Primary Energy system(s)</th>
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<tbody>
<tr>
<td>0-6 seconds</td>
<td>extremely high</td>
<td>Phosphagen</td>
</tr>
<tr>
<td>6-30 seconds</td>
<td>very high</td>
<td>Phosphagen and fast glycolysis</td>
</tr>
<tr>
<td>30 sec - 2 min</td>
<td>High</td>
<td>fast glycolysis</td>
</tr>
<tr>
<td>2-3 minutes</td>
<td>moderate</td>
<td>fast glycolysis and oxidative system</td>
</tr>
<tr>
<td>&gt;3 min</td>
<td>low</td>
<td>oxidative</td>
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</table>
TARGETING THE ‘GEARS OF PERFORMANCE’: HIPS AND CORE!
Sample Dynamic Warm Up Routine
Clean Variations-Progressions (PPCS)
Block Snatch Samples
Power Clean Progressions (Hang)

Wednesday, December 5, 12
Power Clean Progressions (Below Knee)

Wednesday, December 5, 12
Squat Variations (Half)
Squat Variations (1/4 Sq. EXPL)

Wednesday, December 5, 12
Squat Variations (Front Sq Stops)
Tibia Flex-Heel Raise-1/4 SQ Jump
Command drills: toes raises to jump
Repeated Explosive Split Jerk

Wednesday, December 5, 12
1-leg Squat variations (half)
1-leg Squat variations (1/4 jump)
1-Leg RDL Jump (floor)
1-leg Sited Jump
1-leg Sited Jump (Beh. Neck Press)
Heavy Step-Ups

Wednesday, December 5, 12
Explosive Step-Ups

Wednesday, December 5, 12
Tibia Flexes
1-Leg/Arm DB Snatch
DB Incline Bench Press

Wednesday, December 5, 2012
Bench Pullover
Sample: CORE CIRCUIT
THE 6-WEEK PROPRIOCEPTION & KINESTHESIA TECHNIQUE

- 8% OF BW WEIGHT VEST (Wear all day except practice)
- ‘FOOLING BRAIN’ WITH BALANCING TRICKS (WEIGHT CHANGES)
- TESTOSTERONE LEVELS VS CORTISOL/GLUCAGON LEVELS
- 5-10% PERFORMANCE IMPROVEMENT PER CYCLE (6-WEEK)

MESOCYCLE USED: 2 @ 90% + 1 @ 72% + 1 @ 50%
11 male jumpers (HJ-LJ-TJ) as part of observation

Mean age 23 ± 1

Post testing performed following super-compensation week
% SAMPLE ANNUAL PLAN

VOLUME  INTENSITY

OFF-SEASON  PRE-SEASON  IN-SEASON INDOOR  TRANSITION  IN-SEASON OUTDOOR

40%  60%  25%  20%  80%  20%  80%

- CORE & STABILITY
- OLYMPIC LIFTS PROGRESSIONS
- SIMPLE POST ACTIVATION EXERCISES
- NON IMPACT JUMPS
- 5-6 REPS, 5-6 SETS

- CORE & STABILITY
- OLYMPIC LIFTS ADVANCED
- COMPLEX POST ACTIVATION EXERCISES
- MEDIUM IMPACT JUMPS
- 1-3 REPS, 3-5 SETS

- LIGHT ROTATIONAL & BALLISTIC CORE
- OLYMPIC LIFTS: BAR SPEED
- COMPLEX POST ACTIVATION EXERCISES
- HIGH IMPACT JUMPS
- 1-3 REPS, 3 SETS

- CORE & STABILITY
- OLYMPIC LIFTS PROGRESSIONS
- SIMPLE POST ACTIVATION EXERCISES
- NON IMPACT JUMPS
- 5-6 REPS, 5-6 SETS

- CORE & STABILITY
- OLYMPIC LIFTS: BAR SPEED
- COMPLEX POST ACTIVATION EXERCISES
- HIGH IMPACT JUMPS
- 1-3 REPS, 3 SETS

Wednesday, December 5, 12
Failing to plan is planning to fail” -John Wooden
Optimizing training progress
Goals: avoid overtraining! perform at peak
Super-compensation Week: use it!
Science & Application = Experience!
Restoration techniques
Thank You!!
..and GO DAWGS!