BUILD FROM TRADITION

2015 NSCA COACHES CONFERENCE

JANUARY 7 - 10 / LOUISVILLE, KY / NSCA.COM/COACHES2015
• Special Training Considerations for Strength, Specificity, and Energy Systems for Year Long Planning

• Cal Dietz

• cal.dietz@gmail.com

• Thanks to many people.
Various Specificity of Athletes

- Olympian – 5-13
- VJ – 16.9 – 22.6
- Pro Agility – 5.35 – 4.49
- E-10 Yard – 1.97-1.84
- E-20 Yard – 3.29-3.04
- Squat 155-235
- Bench 120-155

Soon To Be Pro
-4 years in program
-Hit Limit??
Work / Heart rate
-Specific 100
-Fast Twitch
Building the Base

• Reasons for Training
  – What makes team Successful?
  – What are Key Qualities
  – Skill and Repeated Sprint Ability
  – RSA to me is Repeated Max Effort (RMEA)
  – How can I effect all Systems involved
  – Globally and Locally
  – Work on 3 Energy Systems involved in Future Training – Aerobic Most Important
Cooked!!!
Building the Base

- History of what your about to see - Tendo
- The Bioenergetic Views- of Base Building
- Anaerobic/Creatine Phosphate - 0-10 Seconds
- Lactate/Glycolysis - +10 – 120 Seconds
- Aerobic – Heart Rate
Alactic Anaerobic / CP

High Quality Ratios
• 0-10 Seconds Work
• Rest
• 2:30 – 5:00 Minutes
• Reps 6 -8

Work Capacity Ratios
• 0-10 Seconds Work
• Rest
• :45 – 1:30 Minutes
• Reps 8 - 16

Alactic Anaerobic / CP Workout

Ideal Workouts

1) Quality/Speed
• 0-10 Seconds Work
• 2:30 – 5:00 Minutes Rest
• Reps 6 - 8

2) Conditioning Focus
• :45 – 1:30 Minutes
• Reps 8 - 16

Combined Qualities Workout

• 0-10 Seconds Work
• First Reps 6 - 8
• 2:30 – 5:00 Minutes Rest
• Then Reduce Rest
• :45 – 1:30 Minutes
• Reps 8 - 16
Lactate/Glycolysis

High Quality Ratios
• +10 – 120 Seconds Work
• Rest
• 2:30 – 5:00 Minutes
• Rest up to 8 Minutes Elite Track
• Reps 6 -8

Work Capacity Ratios
• +10 – 120 Seconds Work
• Rest
• :45 – 1:30 Minutes
Reps 6-10

Aerobic / Oxidative

Guidelines

• Non Adaptive Stress Response – 110 – 150 Heart Rate

• Stay under Lactate Thresholds –

• Aerobic is the most important

Various Protocols

• Too many to list

• Key components for Aerobic possibilities

• Intervals for aerobic work – 4 minutes max for good Quality aerobic intervals

• Long Duration Protocols
Sequence of 3 Training Blocks – Main Theory

- Block 1) Aerobic 2 to 3 weeks – Local & Systemic

- Block 2) Lactate/Glycolysis - 2 to 3 weeks - Local & Systemic

- Block 3) Alactic anaerobic / CP - 2 to 3 weeks - Local & Systemic
Findings For Base Training

• All Systems are Aerobic/O2 supported
• Conundrum – Elite Level Athlete
  – Shot Putter – Aerobic Capacity – How?

Contralateral– 65 Station
Modified EDT - 4 to 8 minutes

5 Minute Isometric Holds - Djatschkov
Benefits of Contralateral

- Lateral Sling

- Brain Considerations for Programing - Future
Lateral Sling

Running most effective - Forces
Strong man
Isometric Flexion
Compatible Aerobic work

- **Metabolic Injury Prevention Running**

![Diagram](image-url)

120 versus 170

Pre Season
Lactate/Glycolysis

• **30 Second Isometric**

• **EDT Methods – High Reps**
Alactic anaerobic / CP - Block

- **10 Second Isometric**
- **10 Second OC**
- **Extreme Myelination Circuit**
Sequence of 3 Training Blocks – Main Theory – 4 to 9 Weeks

• Block 1) Aerobic 2 to 3 weeks – Local & Systemic

• Block 2) Lactate/Glycolysis - 2 to 3 weeks - Local & Systemic

• Block 3) Alactic anaerobic / CP - 2 to 3 weeks - Local & Systemic
GPP Variables for Programming

• GPP – 9 Week Plan – All Blocks Used - Max
  • 3 Aerobic – 3 Lactate – 3 CP/Alactic

• GPP – 6 Week Plan – All Blocks Used - Shortest
  • 2 Aerobic – 2 Lactate – 2 CP/Alactic

• GPP – 6 Week Plan – All Blocks -
  • 2 Aerobic – 2 Lactate – 2 CP/Alactic – Trade CP
GPP Variables for Programming

- **GPP – 6 Week Plan – 2 Block Used**
  - 3 Aerobic – 3 Lactate

- **GPP – 4 Week Plan – 2 Blocks Used - Shortest**
  - 2 Aerobic – 2 Lactate
Closing GPP

• Sports
• Results – Repeated Sprint Athletes that have 39 RHR – Strongest Wingate on Team
• This is not Sport Specific
• Base for Specificity – Raise the Ceiling

• Pain Cave Set 4 minute–
• 90% load failure isometric around 10 seconds
  – 50% load for failure 30 to 40 seconds
  – 30-20% load for a total of 4 minutes
Most Advanced Method

• Supra-maximal Loading- Off Season
• 120 to 100 % + Loading During Eccentric/Isometric
• Most Effective Results in Speed and Reactiveness - Results 3 to 6 weeks – Post
• Compressed Training Effect
• Not Sport Specific
• Adaptation for Time Principle
Various Aspects of Supramaximal

• Strength for powerlifting movements
• Strength for sport—Enzyme
• Maximal Muscle Recruitment
• Maximal Fast Twitch
• Taxing on CNS
• Hyperplasia of myofibrils in muscle fibers

• Increase in free creatine in muscle fibers
• Increase concentration of hydrogen ions if duration enough and or rest reduced
• Hypertrophy of myofibrils in fast muscle fibers
  – Negatives
  Joints and safety, tissue damage
Supramaximal Weekly Loading

<table>
<thead>
<tr>
<th>Day</th>
<th>Intensity</th>
<th>Volume</th>
</tr>
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<tbody>
<tr>
<td>Monday</td>
<td>120-110%</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>90-97%</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>110-105%</td>
<td></td>
</tr>
</tbody>
</table>
Example of the Methods

- **Safety** *Bar Single Leg Squat – Ecc – Iso*
  - Concentric Movement is 80 to 92% Load Blk3
  - Spotter Used on Both Sides and Back
  - Safety Pins are Positioned so only 5 or 6 inches Drop if lift is Missed.
  - Examples Females 136 pounds – Single leg 305
  - Examples Male 190 pounds – Single leg 585
  - Duration is under 10 seconds - Why 10
New Tissue Consideration

• You should never lose sight of the ultimate goal, to add new tissue. This requires balancing the hyperplastic effect of the training against the strong tendency of the body toward catabolism. Cortisol is the body's biochemical agent for catabolism. Training, particularly heavy training, raises Cortisol levels. When Cortisol levels rise, new tissue is favored over old tissue. This raises the potential for a net loss of muscle tissue. This is clearly counterproductive. Wesley James
Tissue Remodeling Biochemical

• Triphasic tissue remodeling – the consideration to keep cortisol down should play a role in programing
• Triphasic first two blocks with Eccentric and isometric with maximal tissue adaption with 20 and 25 second sets.
• After those sets possible sets rest periods are extended and sets are reduced to under 10 seconds. Cluster Training concept.
# Weekly Block Loading Model

<table>
<thead>
<tr>
<th>Block Focus</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1-2 Weeks</td>
<td>Loading Day 1</td>
<td>Loading Day 2</td>
<td>Loading Day 3</td>
</tr>
<tr>
<td><strong>Eccentric</strong></td>
<td>120-110%</td>
<td>90-92%</td>
<td>110-105%</td>
</tr>
<tr>
<td>Block 2-2 Weeks</td>
<td>De-load week</td>
<td>De-load week</td>
<td>De-load week</td>
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<tr>
<td><strong>Isometric</strong></td>
<td>120-110%</td>
<td>90-92%</td>
<td>110-105%</td>
</tr>
<tr>
<td>Block 3-2 Weeks</td>
<td>De-load week</td>
<td>De-load week</td>
<td>De-load week</td>
</tr>
<tr>
<td><strong>Con- Strength</strong></td>
<td>85%</td>
<td>90-92%</td>
<td>85%</td>
</tr>
<tr>
<td><strong>Con- Speed</strong></td>
<td>65%</td>
<td>80%</td>
<td>55%</td>
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### Off Season-Loading Parameters

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<th>Week</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
<tr>
<td>Load</td>
<td>20%-30%</td>
<td>20-30</td>
<td>70% Iso - 50% OC</td>
<td>70% Iso - 50% OC</td>
<td>90% Iso - 70%OC</td>
<td>90% Iso - 70%OC</td>
<td>20%-30%</td>
<td>120% , 110%, 92%</td>
<td>120% , 110%, 92%</td>
<td>20%-30%</td>
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<tr>
<td>Focus</td>
<td>Aerobic</td>
<td>Aerobic</td>
<td>Local Lactate</td>
<td>Local Lactate</td>
<td>Local - CP</td>
<td>Local - CP</td>
<td>Down- load</td>
<td>Eccentric</td>
<td>Eccentric</td>
<td>Down- load</td>
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<table>
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<th>Week</th>
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<th>13</th>
<th>14</th>
<th>15</th>
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<th>17</th>
<th>18</th>
<th>19</th>
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</thead>
<tbody>
<tr>
<td>Load</td>
<td>120%</td>
<td>92%</td>
<td>110%</td>
<td>120%</td>
<td>92%</td>
<td>110%</td>
<td>20%-30%</td>
<td>80% Plus</td>
<td>80% Plus</td>
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<tr>
<td>Focus</td>
<td>Isometric</td>
<td>Isometric</td>
<td>Download</td>
<td>Below 80%</td>
<td>Below 80%</td>
<td>Download</td>
<td>Strength</td>
<td>Strength</td>
<td>ASFM</td>
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2015 NSCA Coaches Conference
January 7 - 10 / Louisville, KY / NSCA.com/Coaches2015
Weekly State of Organism

**Week 1**
- Self Report
- Hormones 120
- Lack of Stress - Functional
- Not One Model Training
- Management of Stress
- Vegas Trip
- Triphasic – 6 Weeks?

**Week 2**
The Stress of Life-Considerations

• Kids on Bus
• Wound Healing – Manage
• Pro Athlete – Emotion Ex wife
• Lack of Sleep – 1 Hour
• Exam week
• Most Advanced Training Method – Training
• In Season Example -
Real In-Season Maladaptation

1 Week

2 Week

3 Week

4 Week

5 Week

M W

M W

M W

M W

M

2 days off

12 Day Straight of Practice

DONE

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Male 3 day Model – French Contrast

<table>
<thead>
<tr>
<th>474</th>
<th>SL Safety Squat</th>
<th>Pair w/</th>
<th>5</th>
<th>215 - 260</th>
<th>1</th>
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<tbody>
<tr>
<td>474</td>
<td>SL Safety Squat</td>
<td>Pair w/</td>
<td>3</td>
<td>280 - 310</td>
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<tr>
<td>474</td>
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<td>Pair w/</td>
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<tr>
<td>474</td>
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<td>Pair w/</td>
<td>1</td>
<td>425 - 450</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T</td>
<td>520 - 570</td>
<td>4</td>
</tr>
</tbody>
</table>

**Safety Squat**

| 340 - 415 | 1 |

| 3 | 445 - 495 | 1 |

| 1 | 590 - 605 | 1 |

| T | 680 - 700 | 4 |

**SL Safety Squat**

| 215 - 260 | 1 |

| 3 | 280 - 310 | 1 |

| 1 | 370 - 380 | 1 |

| 1 | 425 - 450 | 1 |

**Hurdle Hop**

| 4 | Height |

**Pair w/NO REST**

| 4 | 0:1:0:0:0:0 |

**SQ Jump Weighted**

| 4 | $/A | $/A |

**Pair w/NO REST**

| 4 | 0:1:0:0:0:0 |

**Acc Band Jump Pause**

| 4 | 4 |

| 2 Cluster Cycle |

| 7:0:0:10:7:0 |

| ED |

| 10:0:0:10:10:0 |

| EU |

| 1 Cluster Reps |

**Height**

| 4 | $/A | $/A |

**Pause**

| 4 |

**Rest**

| 4 |

**Rest HR 110**

---

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# My Sample Program

<table>
<thead>
<tr>
<th>Exercise</th>
<th>REPS</th>
<th>LOAD</th>
<th>SETS</th>
<th>NOTES</th>
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<td>SL Safety Squat</td>
<td>5</td>
<td>160 - 195</td>
<td>1</td>
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<tr>
<td>Pair w/</td>
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</tr>
<tr>
<td>SL Safety Squat</td>
<td>3</td>
<td>210 - 230</td>
<td>1</td>
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</tr>
<tr>
<td>Pair w/</td>
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<tr>
<td>SL Safety Squat</td>
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<td>275 - 285</td>
<td>1</td>
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<tr>
<td>Pair w/</td>
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<tr>
<td>SL Safety Squat</td>
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<td>320 - 340</td>
<td>1</td>
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<tr>
<td>Pair w/</td>
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<td></td>
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</tr>
<tr>
<td>SL Safety Squat</td>
<td>1</td>
<td>390 - 425</td>
<td>4</td>
<td>2 Cluster Cycle</td>
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<tr>
<td>Hurdle Hop</td>
<td>4</td>
<td>N/A</td>
<td>N/A</td>
<td>4 Height</td>
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<tr>
<td>Pair w/NO REST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ Jump Weighted</td>
<td>4</td>
<td>N/A</td>
<td>N/A</td>
<td>4 0:1:0:0:0:0</td>
</tr>
<tr>
<td>Pair w/NO REST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc Band Jump Pause</td>
<td>4</td>
<td>N/A</td>
<td>N/A</td>
<td>4 0:1:0:0:0:0</td>
</tr>
<tr>
<td>4 way neck</td>
<td>T</td>
<td>N/A</td>
<td>N/A</td>
<td>3 0:7:0:0:7:20</td>
</tr>
<tr>
<td>PW / 45 rest/BB/RT</td>
<td>EU</td>
<td></td>
<td></td>
<td>7 sec 2-way</td>
</tr>
<tr>
<td>Bench Add Groin</td>
<td>T</td>
<td>N/A</td>
<td>N/A</td>
<td>3 0:7:0:0:7:20</td>
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<tr>
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<td>EU</td>
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<td></td>
<td></td>
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<tr>
<td>ANT TIB BND</td>
<td>T</td>
<td></td>
<td></td>
<td>3 0:7:0:0:7:10</td>
</tr>
</tbody>
</table>
Exercise Selection

• The Training Process in becoming Specific.
• Magnitude of Load – Impulse
• Bondarchuck – Dynamic Correspondence
Secrets to Exercise Selection

• What am I trying to accomplish
• Does it do what I want? – Henk Specificity
• The method of Completing Exercise
  – Natural
  – Kinematic Sequencing
  – Bracing – Core Training – Running
  – Butt Training?
  – Is it Sports Specific?
Henk Kraaijenhof

10% rule again!

Average power [W]

<table>
<thead>
<tr>
<th>Repetition</th>
<th>Average Power</th>
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<tbody>
<tr>
<td>1</td>
<td>612</td>
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<tr>
<td>2</td>
<td>598</td>
</tr>
<tr>
<td>3</td>
<td>608</td>
</tr>
<tr>
<td>4</td>
<td>604</td>
</tr>
<tr>
<td>5</td>
<td>570</td>
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<tr>
<td>6</td>
<td>547</td>
</tr>
<tr>
<td>7</td>
<td>523</td>
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</table>

ST

90%

helping the best to get better

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Henk Kraaijenhof

Average force (N)

Knee angular velocity rad/sec

Maximum strength

Power

Vertical jumps

Running

Unload knee extension

VORTEX

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Secret to Performance

• Skill is Key – Everything is a Skill
• Quality Reps – 3 Reps
• Fatigued Prevents Skill Development
• Clusters Training 1+1+1+1+1+1
  • Potentiation Clusters
Potentiation Clusters

- French Contrast Model
  - Exercise Selection
  - Acceleration/ Top End Speed
  - Bio Chemical Aspect of Method
  - Various Samples
Potentiation Clusters

- Simple Contrast Model for high school - Acceleration
- **Sport Back Squat** - 1 rep 65-80% + Box Jump / 1 rep...15-20 seconds Rest
- Sport Back Squat - 1 rep 65-80% + Box Jump / 1 rep...15-20 seconds Rest
- Sport Back Squat - 1 rep 65-80% + Box Jump / 1 rep...15-20 seconds Rest
- Sport Back Squat - 1 rep 65-80% + Box Jump / 1 rep
- Rest 2-3 minutes, then repeat for a total of 2 to 4 sets
Potentiation Clusters

- Top end Speed Running
- Hex Dead lift - 1 rep 65-80% + Hurdle Hop / 1 rep...15-20 seconds Rest
- Hex Dead lift - 1 rep 65-80% + Hurdle Hop / 1 rep...15-20 seconds Rest
- Hex Dead lift - 1 rep 65-80% + Hurdle Hop / 1 rep...15-20 seconds Rest
- Hex Dead lift - 1 rep 65-80% + Hurdle Hop / 1 rep
- Rest 2-3 minutes, then repeat for a total of 2 to 4 sets
Potentiation Clusters

- Peaking Focus for Team Sports, Basic Approach
- 25-30% Load Squat jump 1 rep + Drop box Jump / 1 rep...15-20 seconds Rest
- 25-30% Load Squat jump 1 rep + Drop box Jump /1 rep...15-20 seconds Rest
- 25-30% Load Squat jump 1 rep + Drop box Jump / 1 rep...15-20 seconds Rest
- 25-30% Load Squat jump 1 rep + Drop box Jump / 1 rep
- Rest 2-3 minutes, then repeat for a total of 1 to 3 sets
Potentiation Clusters

- Peaking Focus for Team Sports, Advanced Athletes
- 25-30% Load Squat jump/1 rep + Drop box Jump/1 rep + Acc. Band Jump/1 rep...15-20 seconds Rest
- 25-30% Load Squat jump/1 rep + Drop box Jump/1 rep + Acc. Band Jump/1 rep...15-20 seconds Rest
- 25-30% Load Squat jump/1 rep + Drop box Jump/1 rep + Accelerated Band Jump/1 rep
- Rest 2-3 minutes, then repeat for a total of 2 to 4 sets
References

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