What is the BEST Way to Train The Anaerobic Energy Systems?
Anaerobic Metabolic Conditioning: A Brief Review of Theory, Strategy and Practical Application

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Intensity of exercise is the primary stimulus for anaerobic conditioning.
Intensity

- Moderate to Near maximal to Maximal
- Always balance quality of exercise with sufficient intensity

Intensity

*SPECIAL NOTE*

- Heart Rate (HR) is a poor predictor of exercise intensity during anaerobic training
- Activation of sympathetic nervous system disproportionately elevates HR

Exercise Bout Options

- In sets of repetitions
- Intervals or sprints performed intermittently (active or passive rest)
- Multiple-sequence exercises (circuits), particularly for health/fitness

Sets and Recovery

- Usually 15 to 90-second bouts
- Can last as long as 120 seconds
- Relief of 2 to 3 minutes (active recovery is best) between repeated sets
- Phosphocreatine resynthesis takes up to 3 minutes post exercise
- Plisk suggests a minimum of 2 min recovery

Frequency

- Two to three times per week for fit persons
  - Based on timeline for glycogen repletion

**Anaerobic Progressive Overload**

- Anaerobic-type conditioning is best trained by increasing **intensity or speed** (not duration)
- Extending duration of bouts leads to poor exercise technique and longer recovery

SPECIAL NOTE

★ Exercise recovery by heart rate (HR): allow HR to recover to 120 to 140 bpm (before next bout)

2nd Special Note: Athletes with higher aerobic capacity resynthesize phosphocreatine more effectively,

2nd Special Note: Athletes with higher aerobic capacity resynthesize phosphocreatine more effectively, thus emphasizing a unique benefit of aerobic exercise to improve anaerobic performance!

Value of Resistance Training

- Improvements in muscular strength and power often elicit increased anaerobic performance

Value of Eccentric Training

Many explosive competition sports involve a lot of ballistic stretch-shortening contractions

Anaerobic Conditioning Program Design

- Total exercise volume (repetitions, sets, circuits)
  - At this time there is no evidence-based guideline
  - Plisk suggests that trainers need to focus on exercise quality (with a sufficient intensity) the elicits targeted responses and adaptations for each athlete/client.

Assignment: Apply the Research

- Design an anaerobic training WORKOUT based on current evidence
- Work with a partner
- Write out on your quiz
Assignment: Apply the Research

1. Choose an anerobic activity or sport
2. Design ONE workout session for ONE person
3. What is the training status of the person?
4. What is the goal of the training session?
5. What exercises will you use?
6. What intensity will you employ?
7. How long will each set be in time?
8. How long will you recover between sets (if doing repeated sets)?
9. How would you progressively overload this workout for a subsequent workout?