Key Facts About Detraining

**WHAT IS DETERMINATION?**
- Partial/complete decrement in performance; loss of physiological adaptations following reduction in frequency, volume and/or intensity of training\(^1\)

**RECOGNIZING DETERMINATION IN YOUR ATHLETES**
- Impairments in strength, power, speed, endurance flexibility, and other performance measures
- Decreases in muscle size and girth\(^4\)
- Higher heart rates during rest, submaximal or maximal exercise\(^5\)
- Reduced blood volume and stroke volume\(^5\)
- Higher mean and systolic blood pressures\(^5\)
- Lowered maximal ventilation and ventilator volume\(^5\)
- Increases in waist circumference, body weight, and fat mass\(^6\)

**STRATEGIES TO COMBAT DETERMINATION IN YOUR ATHLETES**
1. Coaches, athletic directors and school administrators consult with athletic trainers, certified strength and conditioning professionals when establishing plan back to physical activity\(^2\)
   - Sports medicine staff have authority to cancel/modify workouts for health/safety\(^2\)
2. Set goals, but be patient. Physiological adaptations take time to develop following periods of detraining
   - First seven days of any new conditioning cycle is high-risk for catastrophic injuries\(^2\)
3. Be positive. Detraining’s physiological consequences aren’t permanent
4. Come up with structured, weekly plan for full return to peak performance
   - Low-volume/impact, high-intensity training once/twice weekly as retraining begins
   - Perform cross-training in initial periods following detraining to distribute physical stressors throughout the body, which may help prevent injury. Cross-train at intensities and durations similar to original sport\(^1,6\)
   - Gradually increase (approx. 15 days) duration, intensity, sport-specificity of exercise activities
   - Remember to incorporate rest days to allow recovery
5. Consume high-protein and nutrient-dense foods
6. Consider using technology (e.g., heart rate monitors and fitness trackers) to keep track of your fitness goals and training loads
   - Refer to rate of perceived exhaustion scale, if no access to devices\(^4\)

**HOW QUICKLY DOES DETERMINATION HAPPEN?**
- Maximal oxygen uptake declines rapidly (approx. 8%) in first 12 days; up to 20% after 12 weeks\(^2\)
- Four weeks of detraining may result in faster time to exhaustion\(^3\)
- In highly trained athletes, inactivity more than 4 weeks can lead to reduction in eccentric force, sport-specific power, recently acquired isokinetic strength\(^6\)

References:

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Key Facts About Detraining

In response to the COVID-19 pandemic, the NATA International Committee has compiled a list of key considerations in returning athletes back to physical activity.

WHAT IS DETRAINING?

- A partial or complete decrement in performance and loss of accumulated physiological adaptations following a reduction in the frequency, volume and/or intensity of training.1
- Maximal oxygen uptake declines rapidly (approximately 8 percent) in the first 12 days and up to 20 percent after 12 weeks,2
- Four weeks of detraining may result in faster time to exhaustion.3
- In highly trained athletes, inactivity of more than 4 weeks can lead to reduction in eccentric force and sport-specific power and recently acquired isokinetic strength.4

RECOGNIZING DETRAINING IN YOUR ATHLETES

- Impairments in strength, power, speed, endurance (i.e., maximal oxygen uptake and time to exhaustion), flexibility and other performance measures.
- Decreases in muscle size and girth.4
- Higher heart rates during rest, submaximal and maximal exercise.5
- Reduced blood volume and stroke volume.5
- Higher mean and systolic blood pressures.5
- Lowered maximal ventilation and ventilator volume.5
- Increases in waist circumference, body weight and fat mass.6

STRATEGIES TO COMBAT DETRAINING IN YOUR ATHLETES

1. Coaches should consult with athletic trainers and certified strength and conditioning professionals when establishing a resumption plan back to organized physical activity.7
   - Sports medicine staff should have unchallengeable authority to cancel or modify the workout for health and safety reasons.7
2. Set goals but be patient. Physiological adaptations take time to develop following periods of detraining.
   - The first seven days of any new conditioning cycle is a high-risk period for catastrophic injuries.7
3. Be positive. Detraining’s physiological consequences aren’t permanent.
4. Come up with a structured, weekly plan for full return to peak performance.
   - Perform low-volume/impact, high-intensity training one to two times a week as retraining begins.
   - Perform cross-training in initial periods following detraining to distribute physical stressors throughout the body, which may help prevent injury. Attempt to cross-train at intensities and durations similar to original sport.1,8
   - Gradually increase (approximately 15 days) the duration, intensity and sport-specificity of exercise activities.
   - Remember to incorporate rest days to allow recovery.
5. Consume high-protein and nutrient-dense foods.
6. Consider using technology (e.g., heart rate monitors and fitness trackers) to keep track of your fitness goals and training loads.
   - You may also refer to rate of perceived exhaustion scale, if you do not have access to devices.9

References:

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