STRENGTH AND CONDITIONING FOR THE FEMALE ATHLETE
OVERVIEW

- Address importance of strength and conditioning for female athletes
- Explore current best practices in strength and conditioning and sport science research as it relates to female athletes
- Discuss methods to best meet the needs of female athletes across various sports and development levels
- Highlight strategies to challenge the culture of girls and women engaging in strength exercises
- Explore barriers or challenges faced by female athletes in accessing effective strength and conditioning programs
WHY IS THIS TOPIC IMPORTANT?

- History of strength training for women
- S&C in Canada
- Effective physical preparation is an essential to improving performance and reducing injuries
WHAT DO WE KNOW?

• Fat free mass and muscle cross sectional area
• Upper/Lower body strength
• Absolute and relative power
• Hormone profile
FOCUS FOR STRENGTH AND CONDITIONING PROGRAMS

- Need to focus on improving maximal strength and power
  
  • Muscular mechanisms
    • Muscle cross sectional area
  
  • Neural mechanisms
    • Motor unit recruitment
    • Rate coding
WHY STRENGTH AND POWER DEVELOPMENT IS IMPORTANT

- Muscular work performed to produce movement
  
  • Generate propulsion
  
  • Attenuate impact forces

- Rate of force development
HOW TO ELICIT ADAPTATIONS

- Long term training plan

  • Must be specific to the sport, season and individualized

  • Emphasis during different phases (off season versus in season versus competition)

  • Program effectiveness
    • Fitness testing, movement screens, general observations
    • Adherence is important
HOW TO ELICIT ADAPTATIONS

- Acute programming variables
- Multi-joint movements
- Ballistic movements
  - Ex. Weightlifting
- Volume and intensity
  - Need to train at higher intensity
Competitive athletes must have a base level of training before reaching higher level sport.

- Development of sport skills concurrently with development of physical qualities.

- Develop good habits early on.
| Goals                        | Primary: Mobility and Technique  
|                             | Secondary: Muscular fitness and Strength  
|                             | Build a “base”  
| Exercise choice             | Basic exercises - Plate Squats, Overhead Squats, Push/Pull Exercises, Accessory exercises  
| Focus                       | Range of motion through controlled movement and body awareness  
| Volume and Intensity        | Moderate volume and low-moderate intensity to start  
<p>| Training Response           | Initial rapid response and adaptations to training |</p>
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<th><strong>INTERMEDIATE/ADVANCED</strong></th>
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| **Goals** | Primary: Explosiveness and maximal strength, transfer of training to sport  
Concentrated training focus (one quality at a time) |
| **Exercise choice** | Complex exercises - Weightlifting movements, Squat and Deadlift variations, Push/Pull Exercises, Accessory exercises |
| **Focus** | Intensity and execution of exercises |
| **Volume and Intensity** | Moderate-high volume and Moderate-high intensity |
| **Training response** | Need greater intensities and/or volume to see adaptation |
WHAT MORE CAN BE DONE?

• Development of strength targets and standards
• Need to work on introducing S&C at optimal age/development level
• Majority of resources/programs at post-secondary and elite levels
• Musculoskeletal injury rates still high
WHAT MORE CAN BE DONE?

- Build a training culture that encourages female athletes:
  • Coaches
  • Parents
  • Athletes
  • Administrators
  • Sport Organizations/Schools
FINAL THOUGHTS

- Implications of inferior physical development to performance and injury risk
- Training with effective methodologies and exercise selection to improve strength and power development
- Access to S&C programs at all levels of development
- Build a positive training culture by eliminating stigmas and misconceptions around S&C for female athletes