Impact of aerobic exercise on children with Down Syndrome

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Introduction/Background

• Down Syndrome:
  – Trisomy of chromosome 21
  – Mental Retardation
  – Physiological Deficits
  – Behavioral Deficits
General Population

• Aerobic exercise benefits:
  – Increase aerobic capacity
  – Decrease in percent body fat
  – No change in non-HDL cholesterol

Potential Benefits

• Decrease Obesity
  – Decrease risk of developing Type 2 diabetes
  – Decrease risk of Hypothyroidism
    • Resulting in a decreased basal metabolic rate
  – Decrease leptin
  – Decrease risk of congenital heart defects
PICO Question

• Does early intervention of aerobic/endurance exercise decrease the severity and complications of obesity associated with Down Syndrome children under the age of ten?

Methods

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Research Synthesis

• Selected articles based on:
  – Key words in title
  – Construct measured
  – Results

• Hierarchy of articles:
  – Systematic Review
  – Pre-test/Post-test study
  – Case Study
  – Literature review

Results

• Background: DS children have many intrinsic physiological factors that stack against them to becoming obese.

• Outcomes: 6-week intense HEP including aerobic and strength training.
  – No significant difference between pre and post training BMI measurements.

• Outcomes: 12-week physical activity program with intensity based on heart rate.
  – Significant reduction in fat mass percentage based on BMI measurement (2.3-3.7% reduction in starting BMI)
Application of Results

- Results found to resolve secondary impairment
  - No preventative research
- Benefits to general population
- Decreased secondary impairment
  - Apply results to prevention

Discussion

- Limited Research
- Lack of preventative research
- Reliability of construct
- Longer intervention periods
- Limitations

http://wac.450f.edgecastcdn.net/80450F/bigfrog104.com/files/2012/07/Valentina-Guerrero.jpg
Areas for Future Research

• Need for longitudinal studies
• Need for reliable construct
• Need for holistic approach for research

References
