Muscular Dystrophy

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Outline for Presentation on Muscular Dystrophy

- Story
- What is Muscular Dystrophy?
- Signs & Symptoms
- Types
- When to seek medical attention?
- Screening and Diagnosis
- Treatment
- Education Assessment
- Considerations
- Review
What is Muscular Dystrophy?

- Muscular dystrophy (MD) is a group of rare inherited muscle diseases in which muscle fibers are unusually susceptible to damage.
- Muscular dystrophy is characterized by progressive weakness and degeneration of the skeletal muscles that control movement.
Signs & Symptoms

- In general:
  - Muscle weakness
  - Apparent lack of coordination
  - Progressive crippling, resulting in fixation of the muscle around your joints (contractures) and loss of mobility.

- Differences between types:
  - Age of onset
  - What parts of the body it affects.
  - How rapidly the disease progresses.
Types of Muscular Dystrophy

- Duchenne’s
- Becker’s
- Myotonic
- Limb-girdle
- Facioscapulohumeral
- Congenital
- Oculopharyngeal
- Distal
- Emery-Dreifuss

Most common types:
- Duchenne’s
- Myotonic
- Facioscapulohumeral
Duchenne’s Muscular Dystrophy

- Types of MD that are due to a genetic deficiency of the protein dystrophin are called dystrophinopathies.
- Duchenne’s is the most severe form of dystrophinopathy.
- It usually appear between the ages of 2 and 5 years old.
- Occurs mostly in boys and is passed on through the mother’s X chromosome.
Signs & Symptoms of Duchenne’s

- Large calf muscles
- Frequent falls
- Difficulty getting up from a lying or sitting position
- Weakness in lower leg muscles, resulting in difficulty running and jumping
- Waddling gait
- Mild mental retardation, in some cases
Signs & Symptoms of Duchenne’s

- It first affects the muscles of the pelvis, upper arms and upper legs.
- It progresses very rapidly.
- By late childhood, most children with this form of muscular dystrophy are unable to walk.
- Most die by their late teens or early 20s, often from pneumonia, respiratory muscle weakness or cardiac complication.
Myotonic Dystrophy

- Also know as Steinert’s disease.
- Produces stiffness of muscles and an inability to relax muscles at will, as well as muscle weakness.
- This form of MD varies in the age of onset, from childhood to adulthood.
- Slow progression.
Signs and Symptoms of Myotonic

- Muscle weakness, particularly in the hands, feet and facial muscles.
- Trouble with breathing and swallowing.
- Clouding of the lenses of the eyes.

Examples:
- Floppy-foot
- High-stepping gait
- Cataracts
- Cardiac abnormalities
Myotonic Grip Test
Facioscapulohumeral Muscular Dystrophy

- Also known as Landouzy-Dejerine disease.
- Onset usually occurs during adolescence.
- It involves slow progressive muscle weakness, usually in this order:
  - Face
  - Shoulders
  - Abdomen
  - Feet
  - Upper arms
  - Pelvic area
  - Lower arms
Signs & Symptoms of Facioscapulohumeral

- Shoulder blades stick out like wings.
- Muscle weakness
- Symptoms can vary from mild to disabling.
Causes of Muscular Dystrophy

- Inherited diseases involving a defective gene.
- Duchenne’s and Becker’s MD are passed from mother to son through the X-linked recessive chromosome.
Causes of Muscular Dystrophy

- Myotonic is passed along a pattern called autosomal dominant inheritance. If either parent carries the defective gene, there is a 50% chance it will be passed along.

- Other types can be passed from generation to generation and affect males and females equally.
When to seek medical attention?

- If you notice difficulty with:
  - Walking
  - Running
  - Getting up or climbing the stairs
  - May appear clumsy and fall often
- Signs of muscle weakness
- Early detection is key, since children can lose their ability to walk as early as 5-7 years old.
Screening & Diagnosis

- Blood test
- Ultrasonography
- Muscle biopsy
- Genetic testing
- Electromyography
There is **NO** cure for muscular dystrophy.

**Current Treatment Options:**
- Physical therapy
- Medication
- Assistive devices
- Surgery
Physical Therapy Treatment

- As MD progresses and muscles weaken, contractures can develop in joints.
- PT can provide regular ROM exercises to keep joints flexible as possible and maintain ROM in joints.
Medications

- Only some forms of MD can be treated with medication.
- **Myotonic dystrophy** - The medication phenytoin and procainamide may be used to treat the delay muscle relaxation that occurs.
- **Duchenne’s MD** - The anti-inflammatory corticosteroid medication may help improve muscle strength and delay the progression of Duchenne’s MD.
Assistive Devices

- Wheelchairs
- Braces
- Canes
- Walkers
- Service Dogs
Surgery may be necessary to release contractures. – Tendon release surgery, usually done on hip, knee, foot.
Other Treatments

- Respiratory infections can become a problem in later stages of MD.
  - Vaccinations for pneumonia
  - Keep up to date with influenza shots
Education Assessments

- IEP must be written for students with MD.
  - May have difficulty moving around.
  - Trouble with daily living tasks.
  - Some forms of MD have mental retardation or learning disabilities associated with it.
  - Will have to work closely with the collaborative team to assess progress and continuing plan of action.
Physical Educator Considerations

- Try and include students in all activities.
- Be aware of the students abilities and limitations. Plan accordingly.
- Allow students opportunities to use their independence in activities. Don’t baby them.
- In later stages of MD continue to include students as much as possible.
Special Considerations

■ Motor Development
  – In early stages of MD, students may be able to function normally or with little change to physical ability.
  – As the disease progresses, mobility and flexibility with decrease.
  – There may be slow, delayed and/ or altered movement patterns.

■ Fitness
  – There may be complications with the respiratory systems, that could affect the degree of physical exertion.
Special Considerations

- Behavior
  - Typically there are little behavior issues associated with MD.
  - However, mental, emotional and social problems are common side-effects to MD.
Appropriate Activities

- Include students in all activities that are appropriate.
- All activities should be low intensity and have little stress on the body.
- Include the following to maintain mobility:
  - Flexibility exercises
  - Strengthening
  - Balance and coordination activities
Review Quiz

1. What is muscular dystrophy?
2. What are three signs and symptoms of MD?
3. What is the cause of MD?
4. List three treatments for MD?
5. How do you cure MD?
6. List four things physical educators can do for a student with MD in their class?
1. What is muscular dystrophy?
   - Muscular dystrophy (MD) is a group of rare inherited muscle diseases in which muscle fibers are unusually susceptible to damage.

2. What are the three general signs and symptoms of MD?
   - Muscle weakness, lack of coordination, and contractures.

3. What is the cause of MD?
   - A defective gene that is inherited.
4. List three treatments for MD?
   - Physical Therapy, Surgery, Medication, and Assistive Devices

5. How do you cure MD?
   - There is NO cure.

6. List four things physical educators can do for a student with MD in their class?
   - Many answers: flexibility, strengthening, balance & coordination, include them in all activities….
References

- Google Images: [www.google.com](http://www.google.com)
- Mayo Clinic: [www.mayoclinic.com](http://www.mayoclinic.com)