

Muscle System Disorders

by Sophia



WHAT'S COVERED

In this lesson, you will be introduced to several muscular system diseases and disorders. Specifically, this lesson will cover:

1. Muscle Strains

A muscle **strain** occurs when a muscle fiber tears or is stretched too far. If a tear is small, it can be very minor and will heal quickly on its own. If the tear is complete, the muscle might lose some of its functionality.

This disorder is caused by overuse or sports injuries.



TERM TO KNOW

Strain

Muscle fiber that tears or stretches too far.

2. Spasms and Cramps

A **muscle spasm** is an involuntary contraction of a muscle. A cramp is a muscle spasm that does not immediately release.

This disorder is caused by potassium deficiency. Potassium is needed for nerve impulses to propagate properly. If somebody has a potassium deficiency in his or her diet, it can cause muscle spasms or cramps.

➔ **EXAMPLE** Have you ever had something called a charley horse? If you have, then you have experienced a muscle cramp (a spasm that doesn't immediately release).



TERM TO KNOW

Muscle Spasm

An involuntary muscle contraction often caused by potassium deficiencies.

3. Muscular Dystrophy

Muscular dystrophy is caused by a genetic disorder; skeletal muscles break down and become weakened.

There are two types of muscular dystrophy:

- *Duchenne muscular dystrophy (DMD)* involves sarcomeres that don't properly contract. Most people who have this type will die in their early 20s and will probably use a wheelchair. This type is most common in children due to the low life expectancy.
- *Myotonic muscular dystrophy* is more common in adults. It's not deadly and will usually only affect the hands and feet. However, it still causes some limiting effects on the person who has it.



TERM TO KNOW

Muscular Dystrophy

A genetic disorder that causes the gradual breakdown of muscle fibers.

4. Tetanus

Tetanus occurs when muscles experience continual contractions, which can lead to death if the paralysis reaches the person's heart. This disorder is also known as lockjaw. A bacterial toxin inhibits your nervous system's signals to the muscular system. The nervous system and your muscular system won't communicate properly, which causes those continual contractions.

Tetanus is transmitted when microbes in soil containing cattle or horse manure enter a wound; however, there is a vaccine that will make you immune to the tetanus toxin.



TERM TO KNOW

Tetanus

A disease caused by microbes that cause muscles to continually spasm.

5. Atrophy

Atrophy is the wasting away of muscle tissue and is caused by lack of muscle use. Those who experience atrophy are often people on bedrest due to an illness or injury. Muscles will start to waste away over time without use; however, if that person is off of bedrest or able to get up and start using his or her muscles again, they can actually reverse the atrophy.



TERM TO KNOW

Atrophy

The wasting away of muscle tissue leading to very weak muscles.



SUMMARY

There are many different disorders of the muscular system, with large ranges of severity. A **strain** can be a small stretch or tear in the muscle that will heal, or it can be a complete tear that may permanently affect functionality. Some disorders are severe enough that they can cause death, such

as **Duchenne muscular dystrophy (DMD)** and **tetanus**. On the other hand, there are some disorders from which a complete recovery is possible, such as **atrophy** and muscle **spasms or cramps**. Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



TERMS TO KNOW

Atrophy

The wasting away of muscle tissue leading to very weak muscles.

Muscle Spasm

An involuntary muscle contraction often caused by potassium deficiencies.

Muscular Dystrophy

A genetic disorder that causes the gradual breakdown of muscle fibers.

Strain

Muscle fiber that tears or stretches too far.

Tetanus

A disease caused by microbes that cause muscles to continually spasm.