Why Movement Changes

Trace causes and effects across muscle and movement conditions.

HAP.5.7 "Research and analyze the causes and effects of various pathological conditions, (e.g., fibromyalgia, muscular dystrophy, cerebral palsy, muscle cramps/strains, and tendonitis)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle each condition's cause or known mechanism, underline an effect on movement or daily life, and draw an arrow connecting each cause to an effect.

Similar Challenges, Different Causes

1. On a school stairway, two students move slowly for very different reasons. In Duchenne muscular dystrophy, a change in the gene for dystrophin leaves muscle cells without enough of this protective protein. Repeated contractions damage the cells, so weakness grows over time; climbing stairs becomes difficult, and the heart and breathing muscles can later be affected. In cerebral palsy, the main problem begins in the developing brain, before, during, or soon after birth. Damage or atypical development in areas that control movement can cause stiff muscles and poor coordination. The original brain condition does not progressively worsen, although movement needs may change with age.

2. Now imagine someone whose whole body aches after an ordinary school day, even though a scan shows no torn muscle. Fibromyalgia involves altered processing of pain signals in the nervous system, which can make touch or movement feel more painful. Its exact cause is not fully known, and pain does not require visible muscle damage. Fatigue and trouble sleeping can make classes, sports, or chores harder to manage. This pattern differs from Duchenne muscular dystrophy: a person with fibromyalgia may hurt without progressive muscle-cell destruction, while a person with Duchenne develops increasing weakness as muscle cells are damaged.

3. After a sprint, a sudden pull in a runner's calf could be a muscle strain. A strain occurs when muscle fibers stretch too far or tear, causing local pain and making it hard to push off that leg. Another athlete develops pain near the elbow after weeks of repeated throws. Repeated loading can irritate a tendon, the tough tissue that joins muscle to bone; this is often called tendinitis. It may make gripping or throwing painful even without a single injury moment. Both problems affect movement, but one begins with an abrupt overload of muscle fibers, while the other follows repeated stress on a tendon.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does a change in the dystrophin gene lead to difficulty climbing stairs in Duchenne muscular dystrophy?

2. What causes movement problems in cerebral palsy, and how does its course differ from Duchenne muscular dystrophy?

3. Why might a person with fibromyalgia have trouble with daily activities even without visible muscle damage?

4. How do the causes and effects of a muscle strain and tendinitis differ?

3 YOUR TURN

Your own words

A student develops pain near the elbow after weeks of violin practice, with no sudden injury. In four sentences, propose a likely condition, connect its cause to an effect on playing, name one observation that could help distinguish it from fibromyalgia, and give one question you would investigate using a trustworthy health source.

Why Movement Changes

PART 1 · READ AND MARK

Circle each condition's cause or known mechanism, underline an effect on movement or daily life, and draw an arrow connecting each cause to an effect. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does a change in the dystrophin gene lead to difficulty climbing stairs in Duchenne muscular dystrophy?	**Without enough dystrophin, repeated contractions damage muscle cells. Increasing weakness makes climbing stairs difficult.**
2	What causes movement problems in cerebral palsy, and how does its course differ from Duchenne muscular dystrophy?	**Damage or atypical development in the developing brain affects movement control. The original brain condition does not progressively worsen, unlike the muscle weakness in Duchenne.**
3	Why might a person with fibromyalgia have trouble with daily activities even without visible muscle damage?	**Altered pain processing can make movement painful, while fatigue and trouble sleeping can make daily activities harder.**
4	How do the causes and effects of a muscle strain and tendinitis differ?	**A sudden overstretch or tear of muscle fibers causes local pain and difficulty using the muscle. Repeated loading irritates a tendon, causing pain during activities such as gripping or throwing.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The pattern suggests tendinitis because repeated violin practice can irritate an elbow tendon. Pain near the joint could make playing the violin difficult. I would ask whether the pain stays near the elbow or is widespread, since widespread pain might point toward fibromyalgia. I would use MedlinePlus to investigate how clinicians distinguish a tendon problem from widespread pain.

Accept answers that accurately connect each condition's mechanism to its effects. For the open task, accept a specific, credible health source and a relevant research question; students need not claim a certain diagnosis.