

An athlete who has been consistently weight training for years presents with significant enlargement of the skeletal muscles. If the athlete were to cease all forms of weight training, what is the most likely outcome regarding muscle cell adaptation?

Group of answer choices

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Skeletal muscle cells will undergo apoptosis and decrease in number.

☐

Skeletal muscle cells will retain their increased size indefinitely.

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☒ The number of skeletal muscle cells will increase further.

Skeletal muscle cells will reduce in size over time.

Which of the following best describes the cellular adaptation process known as hypertrophy?

Group of answer choices

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Increase in the number of cells in a tissue

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Decrease in cell size and tissue mass due to reduced functional demand

☐

Transformation of one mature cell type into another

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Increase in cell size and tissue mass in response to greater demand

A patient has been bedridden for the past 5 months due to a hip fracture and develops reduced muscle mass in her lower extremities. Which of the following is the most likely cellular mechanism underlying this patient's muscle atrophy?

Group of answer choices

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☐ Enhanced mitotic activity in the muscle cells

☒

Accumulation of lipofuscin in muscle cells

Activation of the ubiquitin-proteasome pathway

☐ Increased protein synthesis in the muscle cells