

The Structure of Muscles Key Information

Muscles are made up of bundles of muscle fibres, which are long, cylindrical cells formed from the fusion of many precursor cells. Each muscle fibre is surrounded by a cell membrane called the sarcolemma and contains a specialised cytoplasm known as the sarcoplasm. Inside the sarcoplasm are many mitochondria to provide energy, and myofibrils—contractile units composed of repeating sections called sarcomeres. Sarcomeres contain the proteins actin (thin filament) and myosin (thick filament), which interact to cause muscle contraction. The arrangement of these filaments gives skeletal muscle its striated appearance.

Key words & definitions

Key word	Key information
Muscle fibres	Long, cylindrical cells that make up muscle tissue; formed from the fusion of many cells and capable of contraction.
Sarcolemma	The cell membrane that surrounds each muscle fibre.
Sarcoplasm	The specialised cytoplasm within a muscle fibre, containing the organelles and proteins necessary for contraction.
Myofibrils	Long, thread-like structures within muscle fibres made up of repeating units called sarcomeres; responsible for contraction.
Sarcomeres	The repeating structural and functional units of a myofibril, composed of actin and myosin filaments.
Actin	A protein that forms thin filaments in the sarcomere and interacts with myosin during muscle contraction.
Myosin	A protein that forms thick filaments in the sarcomere and binds to actin to generate muscle contraction.