Insulin-like growth factor-1 induces skeletal muscle hypertrophy

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One of the primary mechanisms controlling skeletal muscle hypertrophy is satellite cell activation, proliferation and differentiation. Insulin-like growth factor-1 (IGF-1) has been shown to stimulate satellite cell proliferation and fusion in rat skeletal muscle and to increase myofiber size and myonuclei number in tissue. This brief review presents the basic information about IGF-1 itself, IGF-1 receptor, different kinds of IGF binding proteins and signaling pathway for biological action of IGF-1. The mechanism of regulation for satellite cell proliferation and differentiation during the hypertrophy induced by IGF-1 will be discussed. The adaptations from IGF-1 treatment and contribution of satellite cell proliferation induced by IGF-1 for the skeletal muscle hypertrophy will be also addressed using recent data.

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