

## **Cellular mechanisms of skeletal muscle fatigue**

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Intense, repeated activation of skeletal muscles causes a decline in contractile performance known as muscle fatigue. Changes in many properties may be involved in fatigue development, including impaired neural activation of muscle cells (central fatigue) as well as impairments intrinsic to the muscle cells (peripheral fatigue). Peripheral fatigue can be caused by a range of factors, including changes in ionic composition, metabolite concentration, phosphorylation status and reactive oxygen species. Endurance training results in numerous changes in muscle cells that act to decrease the changes that cause fatigue. The signals triggering the adaptations induced by endurance training are not fully understood. Most of the mechanistic studies of fatigue-induced changes in force production have been performed on isolated muscle and a major challenge is to use the knowledge generated in these studies to identify the mechanisms of fatigue in humans under normal conditions and how these are affected by training. This presentation will deal with cellular mechanisms of force decrease in fatigue and how fatigue-induced changes can trigger adaptations.