

Dietary modulators of autophagy – implications for muscle repair and post-exercise recovery

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Skeletal muscle is a highly plastic tissue that can adapt relatively quickly to a range of stimuli. For such rapid adaptation to occur, muscle cells must degrade dysfunctional/unused cellular material to provide substrate for new resources. This inherent cellular recycling process, named autophagy, has been shown to be essential for macronutrient metabolism and muscle mass maintenance in pre-clinical models, however, very little is known about its involvement in human skeletal muscle. In spite of this, this pathway is often referenced in social media and news outlets as a key factor in some dietary strategies and even longevity. This talk will focus on summarising the current knowledge base on autophagy in human skeletal muscle, identifying the key limitations of previous work. Emerging methodologies to assess autophagic capacity in human skeletal muscle will be presented, providing a more relevant readout compared to commonly used static measures. Finally, potential dietary modulators of autophagy, over and above conventional fasting, will be discussed within the context of exercise adaptation and skeletal muscle recovery to understand if this pathway can be leveraged in varying populations to improve skeletal muscle metabolism and function.