High-altitude weight loss may have an evolutionary advantage

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Weight loss at high altitudes—something universally experienced by climbers and people who move to higher terrain—may not be a detrimental effect, but rather is likely an evolutionarily-programmed adaptation, according to a new article in *BioEssays*.

Researchers explain that low oxygen causes fat and protein to be broken down, leading to the release of ketones and amino acids, which act as metabolic fuels. Also, ketones enhance the efficiency of oxygen use by the body whilst both ketones and certain amino acids protect cellular components from the detrimental effects of a low oxygen environment.

"Weight loss at altitude, and with it, the release of ketones and amino acids, may reflect an evolutionary adaptation that protected our ancestors' bodies when tissue hypoxia arose during injury or illness. This may be relevant to critically ill patients today, who lose muscle mass rapidly and do not benefit from nutritional support that aims to maintain calorie intake," said co-author Dr. Andrew Murray.

"Perhaps, wasting is in fact saving."

More information: Murray, A. J. and Montgomery, H. E. (2014), How wasting is saving: Weight loss at altitude might result from an evolutionary adaptation. *BioEssays*. DOI: 10.1002/bies.201400042

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