

[Front Biosci \(Elite Ed\)](#). 2012 Jun 1;4:2328-39.

A review of factors affecting antler composition and mechanics.

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Source

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Abstract

Antlers constitute the only mammal model for limb regeneration. A number of factors affect antler regeneration. In this review, we examine such factors and the potential consequences for organ regeneration. As body mineral stores are depleted to grow antlers, physiological exhaustion is shown in the mineral composition, mechanical performance and, according to preliminary studies, porosity of the antler bone material. Nutrition plays an important role in antler characteristics. Thus, antler composition can be used as a diagnostic tool to assess mineral deficiencies in deer. Studies on ecological effects of exceptional weather in plants suggest that minor minerals, particularly Mn, may play disproportionately roles in mechanical performance of bone material. This suggests that Mn (and perhaps other minerals) is essential to incorporate Ca and P from resorbed skeleton material in antlers. Apart from implications for game management, some effects may have applications for medicine.

PMID: 22652640 [PubMed - indexed for MEDLINE]