

# The gastrointestinal tract histology of *Eliomys quercinus* and *Glis glis*

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## Abstract

The Garden Dormouse (*Eliomys quercinus*) and the Edible Dormouse (*Glis glis*) differ in their omnivorous diet, with the first being more carnivorous and readily consuming small vertebrates and even poisonous invertebrates, while the latter consumes more plant-based foods. These differences could lead to histological differences in their gastrointestinal tract, which we wanted to test. Six animals of each species were caught in nature and fed the same diet for two weeks to diminish the impact of the short-term external factors. Tissue samples were taken of middle oesophagus, glandular stomach, middle small intestines and large intestines. They were stained with H&E for measuring the thickness of layers in oesophagus gastric mucosa and epithelial cell height in the intestines. Alcian blue - PAS stain was used for goblet cell count and type identification in the intestines, differentiating blue (acidic), lilac (neutral) and purple (mixed) cells. Results showed *Eliomys quercinus* having greater variance in oesophageal layer thicknesses, significantly thicker muscularis mucosae and thinner tunica muscularis in the oesophagus, and thicker gastric mucosa compared to *Glis glis*. *Eliomys quercinus* also had a significantly higher total goblet cell count in both intestines and a higher count of each type in the large intestine, although *Glis glis* had far more mixed and neutral goblet cells in the small intestine. Both showed intriguingly low numbers of neutral goblet cells in the small intestine. These results indicate interesting differences in gastrointestinal histology and goblet cell distribution in comparison with their distinct diets.

## Keywords

gastrointestinal layers, oesophagus, intestines, goblet cells

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## **Conflicts of interest**