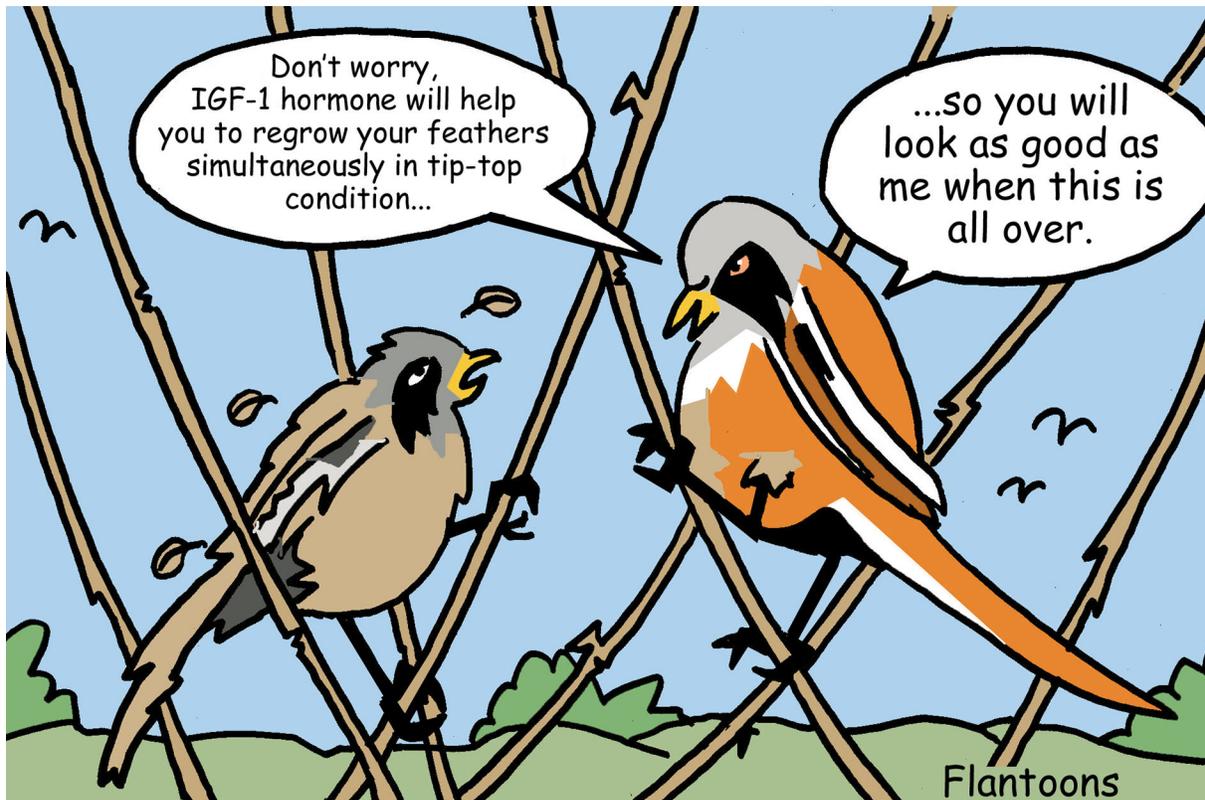


## INSIDE JEB

## IGF-1 hormone controls feather moult intensity



Moulting is an essential rite of passage for chicks across the globe, disposing of their downy fluff in favour of majestic flight feathers that bear them aloft. But no one knew how these juvenile aviators orchestrate their transformation. As the ubiquitous hormone insulin-like growth factor 1 (IGF-1) is key to growth in many organisms, Ádám Lendvai and colleagues from the University of Debrecen, Hungary, with collaborators from the Institute of Pharmaceutical Sciences, Switzerland, collected juvenile bearded reedlings (*Panurus biarmicus*) from the Hortobágy-Halastó wetland reserve in Hungary to find out whether a dose of the hormone would help their moult along.

Impressively, the youngsters that received an injection of microscopic particles that

gradually released IGF-1 into their blood replaced their feathers faster than the birds that had not received the injection. In addition, the injected birds produced more new feathers; their moult was further along. The new feathers were also in better condition and had fewer blemishes than those of the untreated birds. However, when the team compared how fast the young adults' individual feathers grew, the hormone hadn't increased their growth rate; the feathers of the untreated birds were growing just as fast.

'These results suggest that an increase in IGF-1 does not speed up feather growth, but may alter moult intensity by initiating the renewal of several feathers simultaneously', says Lendvai. However, the team suspects that IGF-1 isn't the only

hormone involved in restoring birds' plumage. Explaining that stress can suddenly reduce the amount of IGF-1 in a bird's blood – potentially placing them in peril if the drop occurred at a critical point in the moult – Lendvai suspects that other hormones also play an essential role coordinating the transformation of the bearded reedling youngsters from scruffy balls of fluff to perky adult reed bed residents.

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Lendvai, Á. Z., Tóth, Z., Mahr, K., Osváth, G., Vogel-Kindgen, S. and Gander, B. A. (2021). Effects of experimental increase in insulin-like growth factor 1 on feather growth rate, moult intensity and feather quality in a passerine bird. *J. Exp. Biol.* **224**, jeb242481.

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