Basal Metabolic Rate and Domestication

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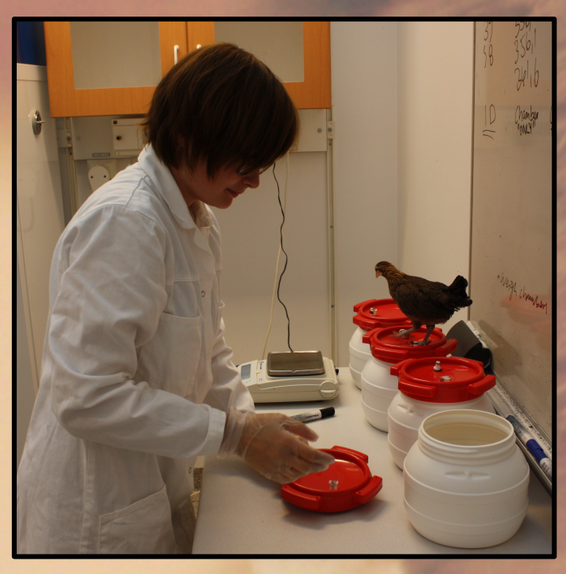
Background & Aim

In early domestication, low fear of human was probably an important factor. Selection on low level of fear of humans changes other traits as well, such as body size, coat colour and stress response in a way that is similar for the domesticated species.

The aim of this study was to determine if selection on low level of fear of human affects basal metabolic rate (BMR) in chickens.

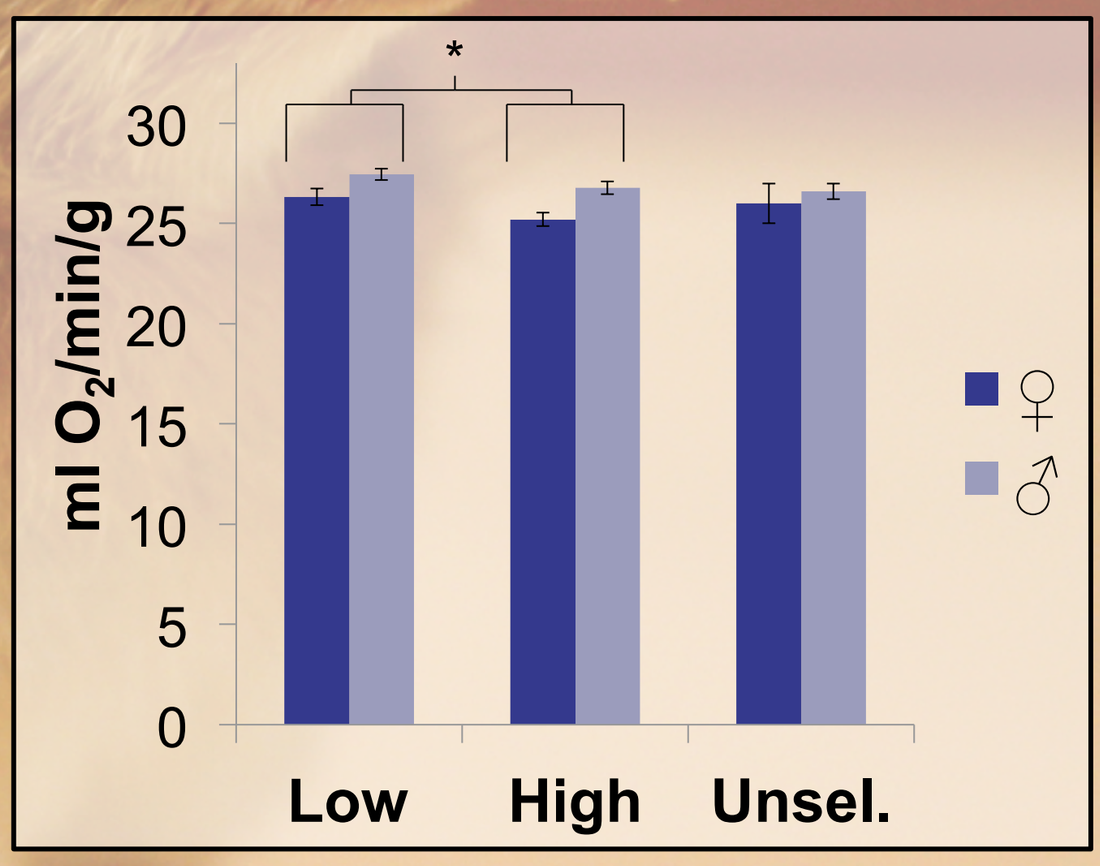


Material & Methods

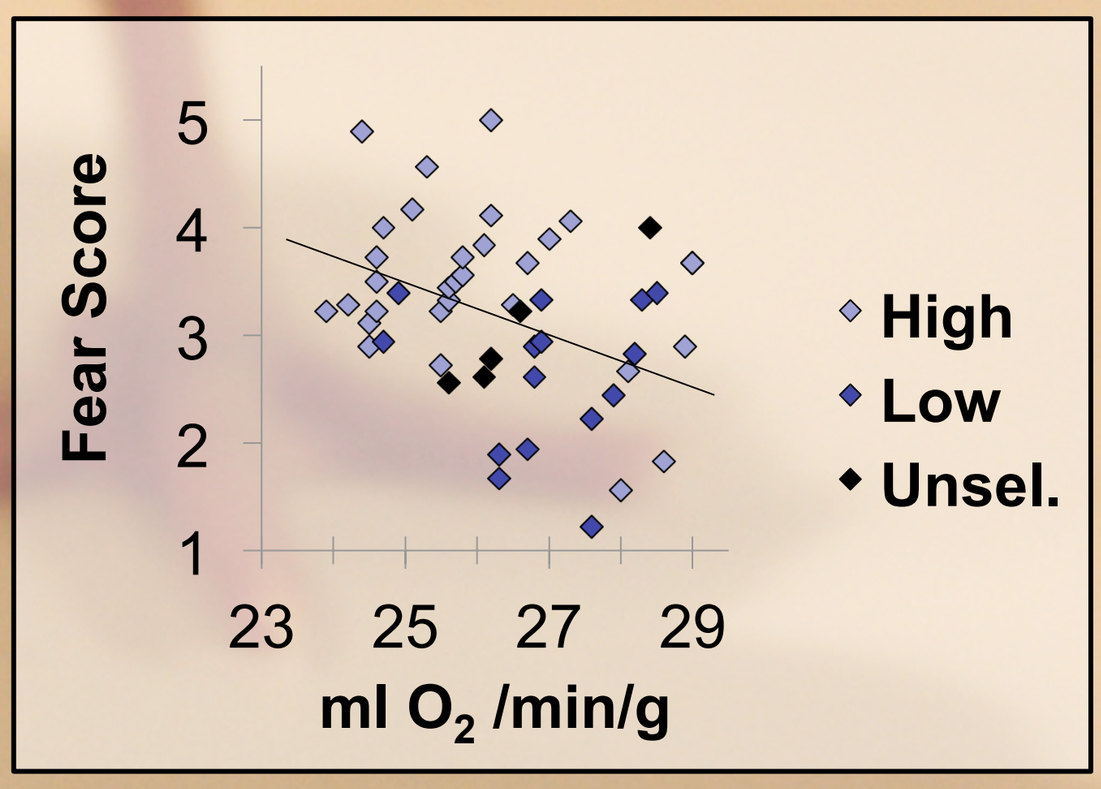
BMR in males and females of Red Junglefowl chicks selected on low and high fear of humans (5th selected generation) was measured in an open respirometry system for 12 h overnight at the weight of 185 ± 5 g (age 5-6 weeks). Fear score was determined through a standardised behavioural test.

Results

BMR was significantly higher in Low compared to the High fear line ($p<0.05$). Whereas the line effect was significant ($p<0.05$) there was no sex effect ($p>0.05$) and no interaction between sex and line ($p<0.05$). BMR correlated negatively with fear score ($p<0.05$)



*Mean (± SE) O_2 consumption in selection lines Low, High and Unselected. *<0.05*



Fear score plotted against mean O_2 consumption in selection lines Low, High and Unselected. R^2 Linear = 0.130

In conclusion, selection on low fear of humans seems to affect BMR so that low fear individuals have a higher BMR compared to high fear individuals.

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