MSc program Applied Ethology and Animal Biology

A mutation in the TSHR-gene — how does it affect social and fear related behaviours in chickens?

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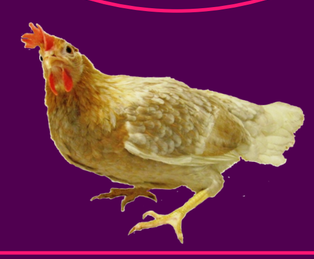
Background

Thyroid stimulating hormone can affect a wide range of domestication phenotypes, such as behaviour, growth rate and pigmentation in birds. The thyroid stimulating hormone receptor (TSHR) gene has mutated in domestic chickens and can be involved in the release of the strict photoperiodic regulation, which also can affect development, behaviour and growth.

Aim

The aim was to investigate whether the TSHR-gene was involved in the domestication effect of fear related behaviours

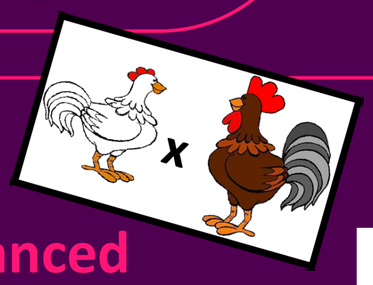


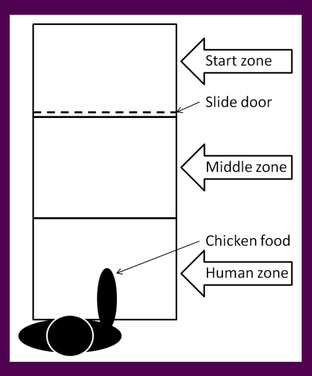
Conclusion

There are behavioural differences between the wild type and domestic type. From this I draw the conclusion that the mutation of the TSHR gene is involved in the behavioural changes during domestication.

Material

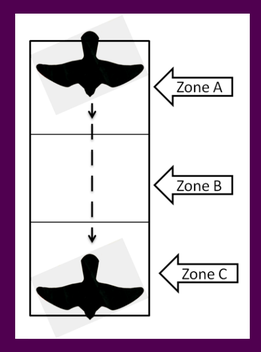
Chickens from an advanced intercross line of red junglefowl and White leghorn were selected for being homozygous for either the wild type or the mutant allele at the TSHR locus.





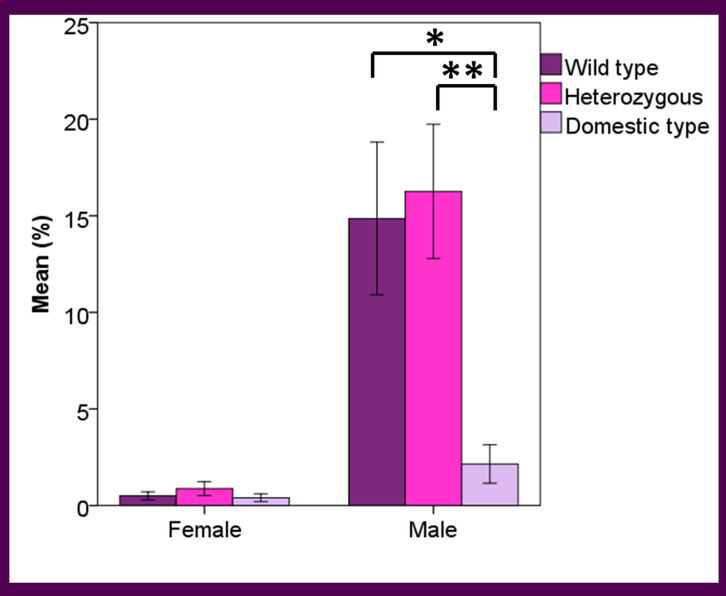
Methods

- Aerial predator
- Fear of human
- Social dominance
- Tonic immobility

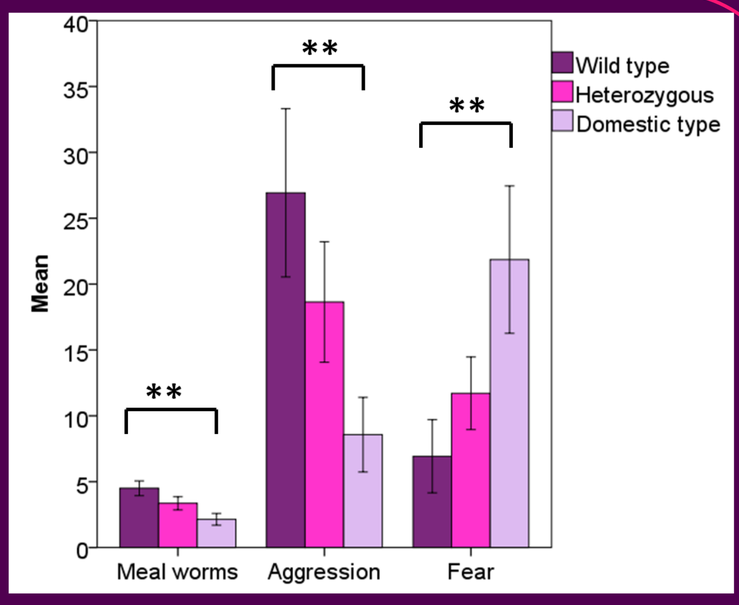


Results

Domesticated male chickens showed less fear behaviours in the fear of human test. The social dominance test showed that the wild type chickens are more aggressive towards and less afraid of other individuals.



Fear of human test
**=p<0.05; **=p<0.01*



Social dominance test
***=p<0.01*

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