Does Hypoxia cause hypertrophy that affects the elasticity in the aortic wall of the broiler chicken?

By

Martin Hansen
Applied Biology, International Mastersprogram
Linköpings Universitet

LINKÖPINGS UNIVERSITET

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Theory

Low birth weight

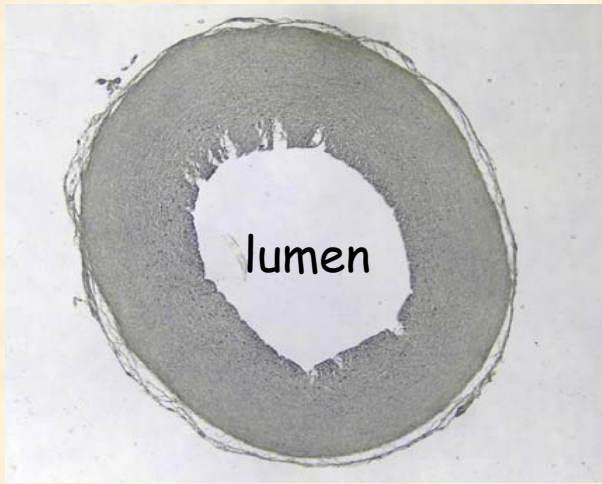
- High blood pressure
- Heart disease
- Non-insulin dependent diabetes

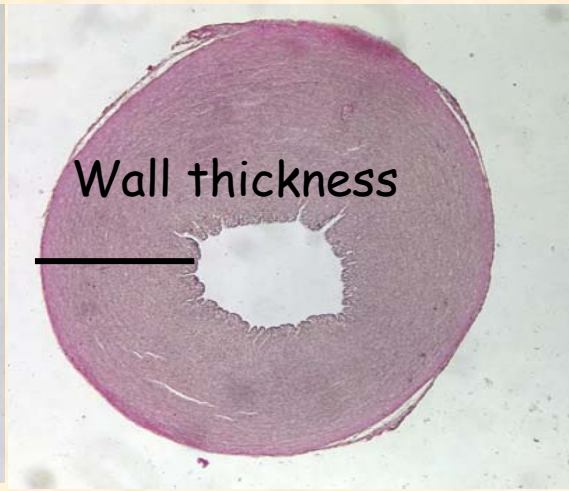
The most common cause for a low birth weight

- Malnutrition
- Hypoxia (insufficient oxygen supply)

Idea

White Legghorn
(Rouwet et al., 2002)





Muscle growth

↓

Decrease in lumen diameter

↓

Increase in wall/lumen ratio

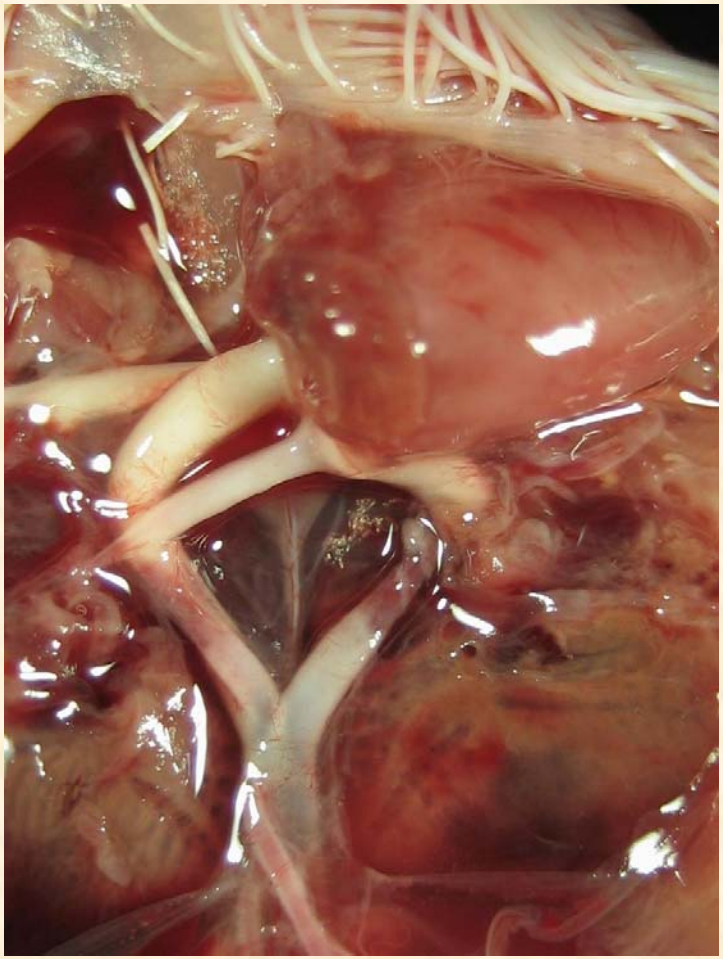
Aim

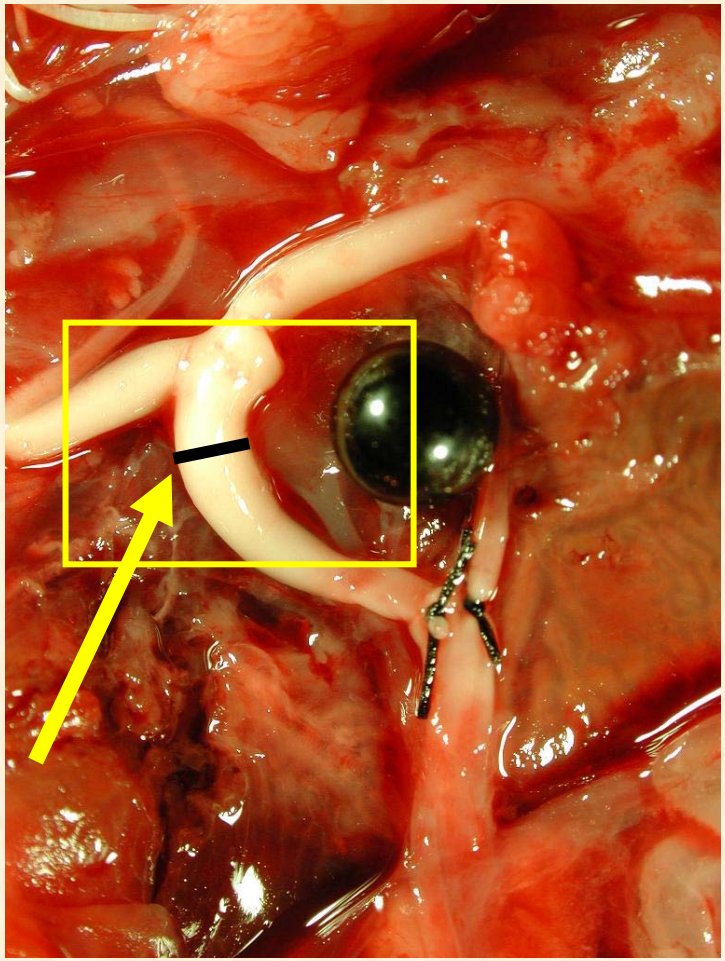
The aim of the study is to investigate the effect of hypoxia on the aortic wall in 19 days old broiler chicken embryos.

I hypothesis that:

- Broiler chicken embryos treated with hypoxia will show aortic hypertrophy.
- Seen as a decrease in lumen diameter and an increase in wall/lumen ratio
- Wall elasticity will also be effected.

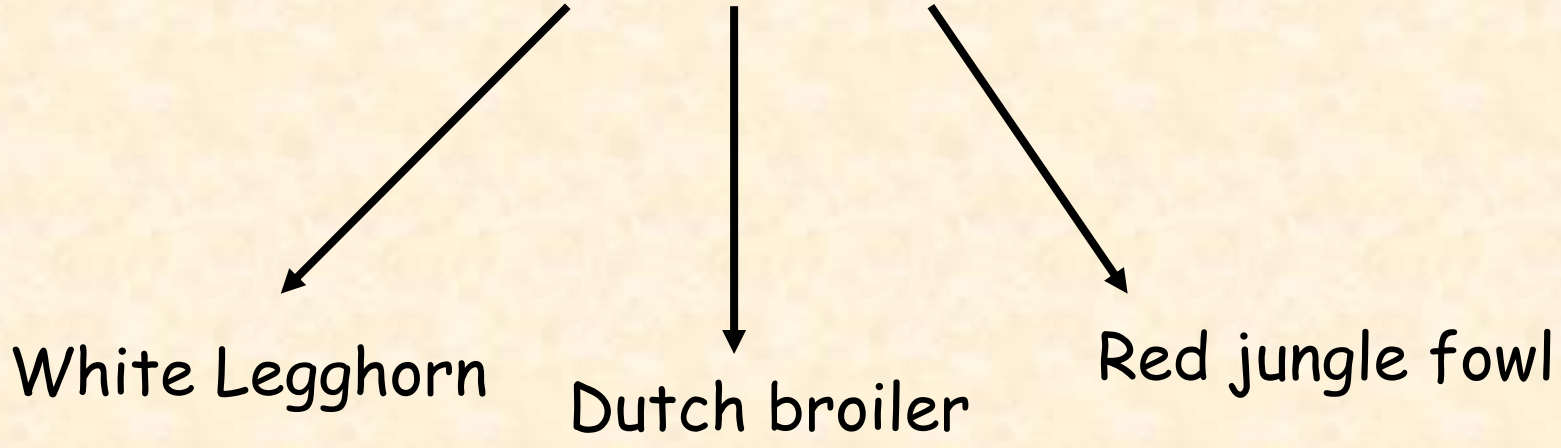
Method

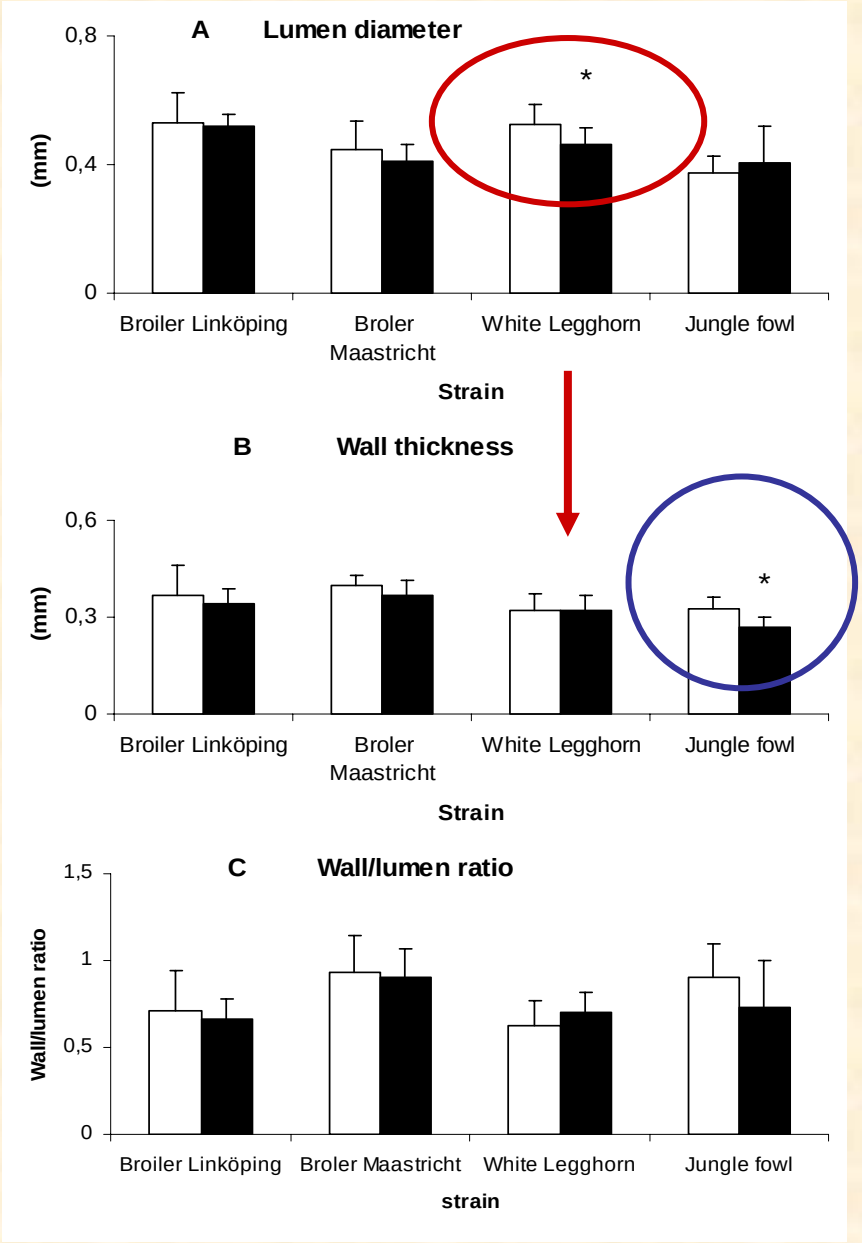




Results

No aortic hypertrophy could be seen in the broiler chicken embryo.

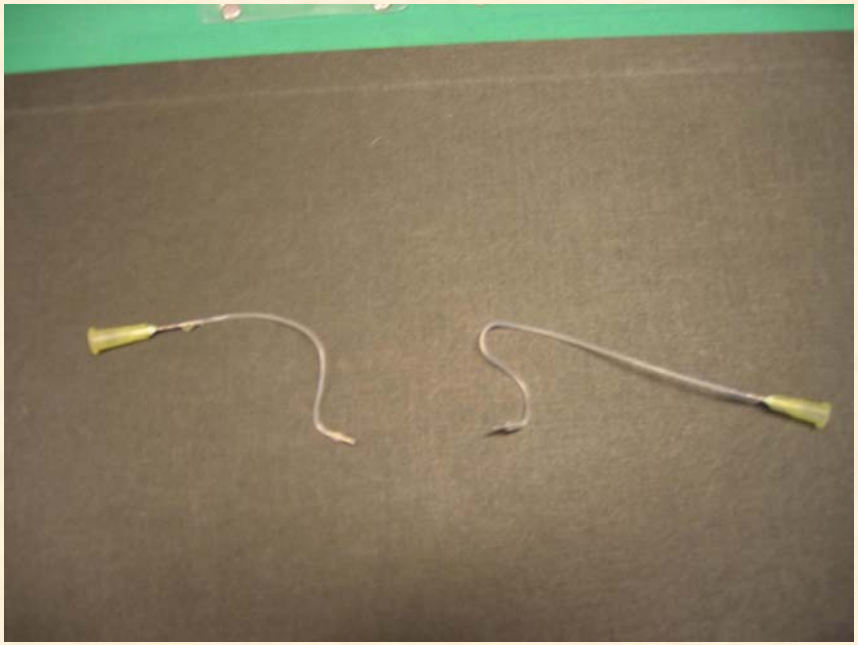


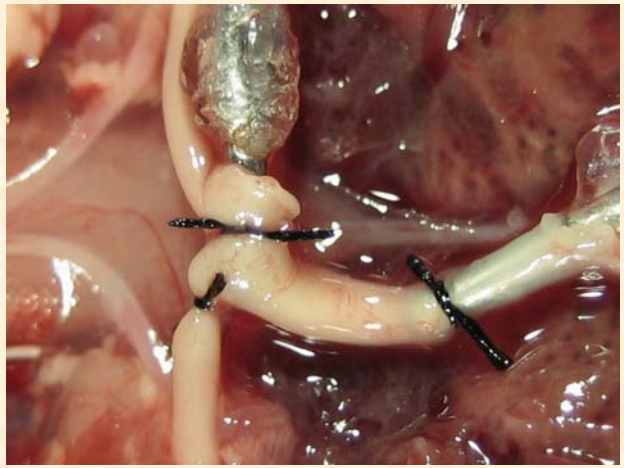


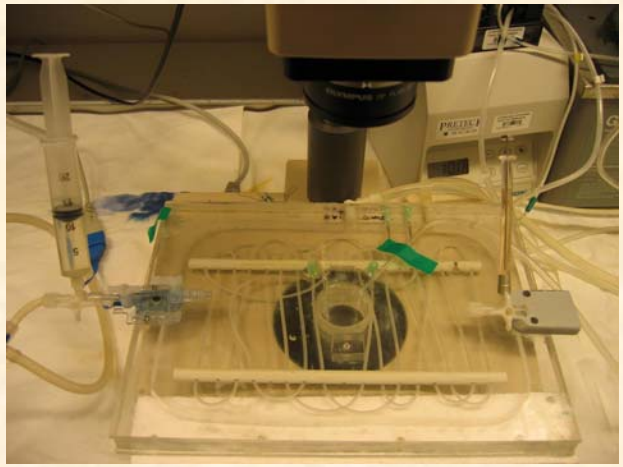
Results

- Embryos treated with hypoxia had a significantly smaller body mass
- Hypoxic White Leghorn embryos have a significantly smaller lumen diameter
- Hypoxic jungel fowl have a significantly smaller Wall thickness
- No difference found in Wall/lumen ratio

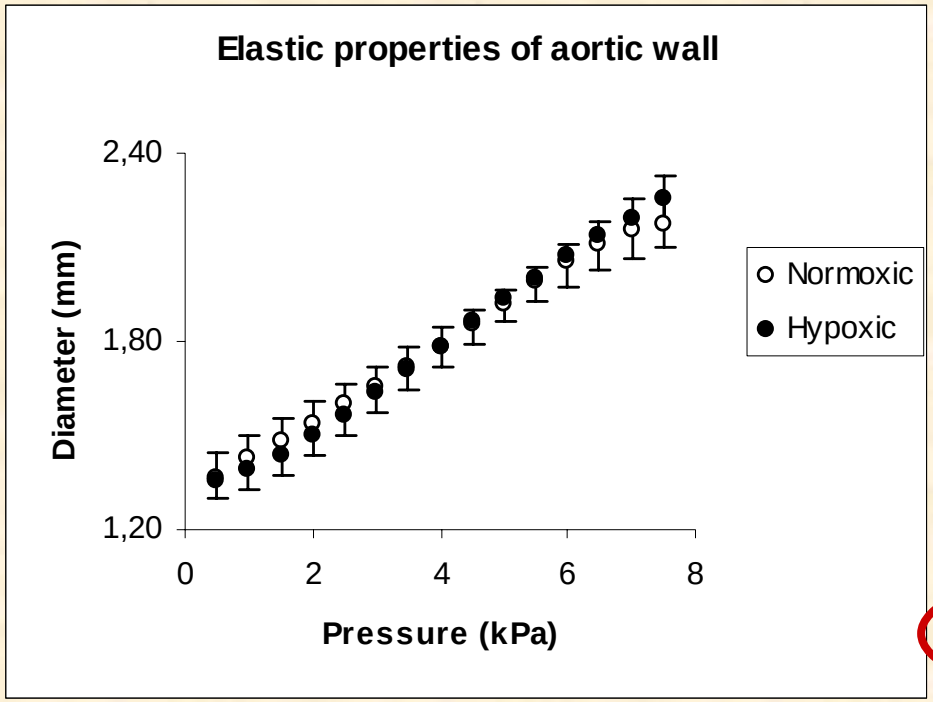
Methods PV-loop

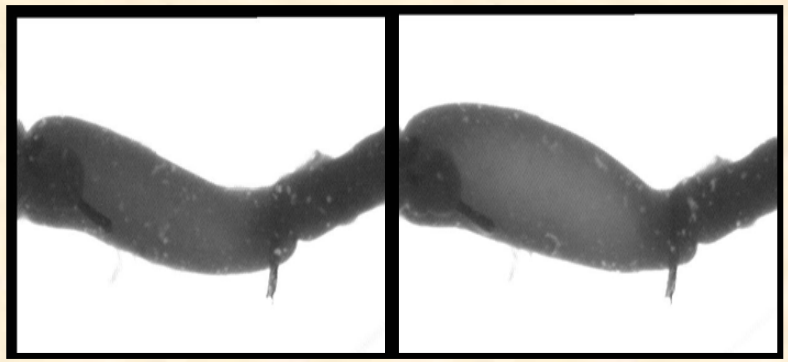






Result PV-loop





No changes in elastic properties

Conclusion

- No evidence of aortic hypertrophy was found.
- But differences in responses to hypoxia could be seen in the different strains used.
- The elastic properties of the aorta were not altered by hypoxia.

Thank you all for your attention

Any questions?