

Foetal programming: *in ovo* manipulation of embryonic development

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Recent studies have shown that lifelong health of humans depends not only on genetics and postnatal lifestyle but also on the environment that existed *in utero*. That is the maternal environment during tissue development appears to set an animal up for predisposition to various metabolic diseases. Animal scientists are now interested in using this knowledge to improve the health and production of animals. However it is difficult to manipulate the environment of mammals because it is difficult to apply treatments that will cross the placenta and reliably affect the foetus. Birds, on the other hand provide a great model for such studies because the embryo develops outside the mother (in the egg). We aim to inject eggs at different stages of development with targeted therapeutic nutrients to alter the development of the embryo and to then examine the effects of these interventions on the lifetime health and productivity of the resulting chickens. This research is important because if we can prove the model works it will become a means of testing the effects of various nutrients on embryo development, which has implications for the diets of pregnant women. It may also provide a method for the chicken industry to improve the health and production of chickens.