



Speaker invited by: Bart Kempenaers

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Mechanisms of maternal hormone transfer to avian eggs and implications for hormone-mediated maternal effects

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Maternal hormones in the yolk of birds' eggs have been a focus of attention in behavioural and evolutionary ecology since the pioneering work of Hubert Schwabl. To date, the field has been dominated by the idea that mothers use the deposition of yolk hormones to adaptively adjust offspring development, a view that assigns control over hormone deposition, and its effects on the offspring, to the mother. This neglects the possibility that the evolutionary interests of the mother and offspring differ. When there is such parent-offspring conflict, the offspring are selected to respond to the hormones in a way that is adaptive for themselves, rather than for the mother. Are offspring able to "decide" how to respond to the hormonal signal, by e.g. metabolizing maternal hormones to inactive products, taking hormones selectively up from the yolk or adjusting their receptors? To what extent females can vary the transfer of hormones to the egg independently from their own exposure to these hormones? I study how and where maternal hormones are transferred from the maternal circulation into the egg and from the egg to the developing embryo and how they are metabolized during these processes and will discuss in how far the regulation of maternal hormone deposition into the egg and of the offspring's response to these hormones will determine to what extent mother and offspring can control and benefit from these maternal effects.

Who is Nikolaus v. Engelhardt?

2000 PhD University of Groningen, NL

2007 Marie Curie postdoctoral fellowship Cambridge University, UK

Selected publications:

N. von Engelhardt, Kappeler, P., Heistermann, N. 2000: Androgen levels and female social dominance in *Lemur catta*. Proceedings of the Royal Society of London B: Biological Sciences 267: 1533-1539.

N. von Engelhardt, Groothuis, T. 2005: Measuring steroid hormones in avian eggs. Annals of the New York Academy of Sciences 1046: 181-192

T. G. G. Groothuis, von Engelhardt, N. 2005: Investigating hormones in avian eggs: measurement, manipulation and interpretation. Annals of the New York Academy of Sciences 1046: 168-180

N. von Engelhardt, Carere, C., Dijkstra, C., Groothuis, T. 2006: Effects of elevated yolk testosterone on offspring begging and sex specific growth in the zebra finch. Proceedings of the Royal Society of London B: Biological Sciences 273: 65-70.

W. Müller, Lessells, K., Korsten, P., von Engelhardt, N.: Manipulative signals in family conflict? On the function of maternal yolk hormones in birds. American Naturalist, in press