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Institut für Kultur- und Sozialanthropologie

# Wednesday Seminars

## WinterSemester 2017/18

**Philipp Mitteröcker**

An evolutionary model of human childbirth: Mathematics in-between biology, medicine, and society

*Mittwoch 10.01.2018, 17.00, HS C, IKSA, NIG, Universitätsstraße 7, 1010 Wien, 4. Stock*

***Philipp Mitteröcker*** *studied evolutionary anthropology and biology at the University of Vienna and received his PhD in 2007. Currently, he is an associate professor in the Dept. of Theoretical Biology at the Univ. of Vienna. His research connects conceptual, mathematical, and statistical analyses of the evolution of human biology and sociality. In addition to medical applications, he is also interested in the philosophy of biology and statistics.*

*http://theoretical.univie.ac.at/people/mitteroecker/*

***...kommende Termine***

17.01.2018 **Georg Gappmayer** (*in Kooperation mit den Wiener Dialogen der Medizinanthropologie*)
**Die Herstellung von Differenz in der Wertigkeit von Menschen mit intellektueller Beeinträchtigung**

24.01.2018 **Dominik Schieder**
**(Multi-)ethnic sociality in context: Fiji Islander migrant organisations in Japan and the United Kingdom**

During the last decades, rates of Caesarean section have multiplied; by now it is one of the most frequently performed surgical treatments worldwide. Even if many of these C-sections are not strictly medically indicated, human childbirth is complicated and risky compared to that in other primates. Why has evolution by natural selection not led to a wider birth canal, thus reducing the high rates of obstructed labor?

I present a model that explains the high rate of obstructed labor by the specific properties of the selection scenario involved in human childbirth. Drawing from epidemiology and evolutionary quantitative genetics, the model allows for an estimation of the strength of selection on neonatal and maternal dimensions. I show how moderate directional selection suffices to account for the high rates of cephalopelvic disproportion and discuss why selection has been unable to reduce these rates. The model also predicts an evolutionary response of pelvic and neonatal dimensions resulting from the regular use of Caesarean sections, which has in turn inflated cephalopelvic disproportion rates. This prediction of an evolutionary process in modern society is difficult to test based on C-section rates because they have increased much more rapidly for non-medical reasons and vary considerably between countries and social groups. Thus I show how the model can be tested based on data on the intergenerational “inheritance” of Caesarean delivery.

This research illustrates how evolutionary theory can contribute to understand the entanglement of biosocial and epidemiological change in modern societies. Finally, I will discuss the academic challenges that result from working across the boundaries of biology and the humanities.