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Student work on trends in infant and child growth – an editorial

Michael Hermanussen^{1,*}, Christiane Scheffler², Detlef Groth³, and Barry Bogin⁴

¹ Aschauhof 3, 24340 Eckernförde – Altenhof, Germany

² University of Potsdam, Institute of Biochemistry and Biology, 14469 Potsdam, Germany

³ University of Potsdam, Institute of Biochemistry and Biology, Bioinformatics Group, 14476 Potsdam-Golm, Germany

⁴ Centre for Global Health & Human Development, School of Sport, Exercise & Health Sciences, Loughborough University, Leicestershire LE11 3TU, UK

* Corresponding author: michael.hermanussen@gmail.com

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Students are supposed to read and to learn. But students are also supposed to question what they read. To do so they need to meet, to exchange ideas, and they need international platforms for discussions. Pursuing the goals of our previous International Student Summer School (Hermanussen et al. 2018), 12 Students from six countries met in Potsdam and nearby rural Gülpe (Ecological station of Potsdam University, Germany) for a one week retreat. All of them had collected data that referred to infant and childhood growth and contributed this material for focusing on new ideas and interpretations. Most though not all of these students finally succeeded in producing high quality publishable manuscripts of their work. Again, great interest occurred in the phenomenon of popular beliefs in nutrition and their impact on growth. We discussed how such beliefs tend to resist scientific evidence, and debated their consequences on infant feeding practices. Francis Friebe (Friebe et al. 2019) studied to what extent popular ideas and beliefs depend on culture and age and how they are related to child biology.

Another aspect of interest was historic material. Lidia Lebedeva (Lebedeva et al. 2019) had screened historic sources. Much of this material has quite completely disappeared from public attention. She re-analyzed mid-19th century body height of conscripts from the central provinces of the Russian empire. In those days, people's mobility was limited and serfdom an important political topic. Lebedeva showed to what extent physical mobility and geographic neighborhood influenced body height.

Laure Spake (Spake & Cardoso 2019) focused on mortality bias in growth which is an important challenge and issue to the analysis and understanding of past populations. She showed that mortality bias in growth may exist, but it

may not be large enough to impact interpretations of past population growth patterns. Anne Reimann (Reimann et al. 2019) addressed one of the biggest pharmaceutical scandals in post-war German history, the “Contergan scandal” of the late 1950s and early 1960s. Contergan (Thalidomide) when taken during early pregnancy can cause severe developmental disruption. World-wide more than 10,000 cases of infants with phocomelia due to thalidomide were reported. Reimann for the first time generated reference centiles for limb measurements that facilitate estimating the magnitude of limb disproportions and serves for improving the assessment of pension rights. Olga Parfenteva (Parfenteva et al. 2019) analyzed the association between sport specialization and the rs9939609 SNP in the FTO gene in cohorts of professional and amateur young athletes, and highlighted the importance of physical activity and sports on body composition. Paulina Pruszkowska-Przybylska (Pruszkowska-Przybylska et al. 2019) analyzed data on body composition and linked this material to socioeconomic status and parental age, as well as birth parameters and breastfeeding.

One of the main topics of this Summer School was the application, the dissemination and the utilization of statistical tools. Statistics is a difficult issue for students, but nevertheless, a linchpin of their current and later work. Rebekka Mumm (Mumm & Scheffler 2019) used linear mixed effect models and structure equation modeling to analyze the influence of nutrition on height in data from the study “Young Lives” performed in Ethiopia, India, Peru, and Vietnam. They found randomly significant and non-significant effects with no evidence for a nutritional influence on height in children and adolescents in all countries. Amelie Fritz (Fritz et al. 2019) further developed Monte Carlo based approaches

to the understanding of human growth. Based on the map of real street connections in Switzerland, and randomly generated networks, she modeled migration within spatial networks, and showed the influence of the network structure on the strength of secular height trends. Stimulated by these findings and many vivid discussions particularly regarding the interpretation of associations between parameters, and the inherent problems of detecting causality, Detlef Groth, Christiane Scheffler and Michael Hermanussen (Groth et al. 2019) inaugurated a new method for analyzing multiple linear correlations. The new technique helps translating multiple correlations into network graphs, and under particular circumstances, even allows for unveiling causal associations.

The manuscripts presented in this issue, result from original data, provided by students, and discussed in the light of their different sensitivity for scientific questions, and their heterogeneous personal and educational background. The Summer School helps students to carefully read, and learn to question prevalent concepts of knowledge. We hope that this concept is able to establish new and permanent international contacts, and may result in future cooperation and friendship between the participants.

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