**Statistical Consultation under Constraints**

Tim Litwin, Institut für Medizinische Biometrie und Statistik (IMBI), Universitätsklinikum Freiburg

Animal experiments require precise biometrical and statistical guidance such that they generate reliable and statistically valid conclusions while simultaneously adhering to the high ethical standards involved. This need for biometrical expertise is especially apparent in sample size calculation: Both the scientists which designed the experiment as well as the public authorities which decide whether the experiment may be conducted are interested in the optimal amount of animals required in the experiment to both generate reliable results while experimenting on as few animals as possible. However, statistical consultation can prevent many other pitfalls, ranging from prevention of experiments which add little to answer the research question to more statistical considerations such as different animal allocations between treatment and control group and the need for data transformations. We as statistical consultants provide independent assessment of the experimental plan and try to improve it where possible. Additionally, we try to condense the biometrically relevant information in an easy to digest way for the public authorities such that it feeds into the decision process. However, this needs to be done routinely for all scientists who apply for animal experiments, such that the time and resources which we can spend on consulting any animal experiment are severely limited. This talk gives some insights into our established practices and the necessary considerations when providing statistically consultations under these constraints. To this end, the main considerations relevant for our consultations are described and commonly encountered statistical and experimental design motifs are discussed.