

Title: On statistical properties of a proposed “standardization” procedure  
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Real conditions encountered analyzing experimental data never perfectly match the idealized conditions under which conventional statistical procedures were developed. Often the mismatch isn’t severe enough to invalidate statistical properties. Sometimes, though, the researcher sees effects that the procedure doesn’t and then improvises the statistical analysis to better reflect, in the researcher’s view, the real conditions. Such improvisations can become accepted, standard practice without ever having had their statistical properties scrutinized.

The objective of my talk is to present one example, which was shown to me by Robert Siggins in the Department of Physiology. See the attached paper from *Analytical Biochemistry*. The authors present a procedure to adjust for “substantially variable biological repeats” before comparing treatments to a control. The procedure apparently does not fit into any standard statistical method, and so its statistical properties are unknown. I’ll report results of simulations to assess these properties, and I’ll show how this procedure can be viewed as a weighted, 2-way ANOVA procedure.