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A note on “Deriving injury risk curves using survival analysis from biomechanical experiments”, *Journal of Biomechanics* (in press)

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We read Yoganandan et al. [4] with interest, and are encouraged to see continued efforts to improve statistical practice in the field of biomechanics, and to continue to evaluate the ISO recommendations [2] for the construction of injury risk functions. We have also previously raised concerns with regard to statistical practice in this area; unfortunately the present article does not fully address some of the issues documented in McMurry and Poplin [3]. In this note, we highlight two previously raised points of clarification plus a new point raised by these new recommendations. The first concerns the ability of relatively crude statistical techniques to “choose” optimal model formulations; the second concerns the use of confidence interval width as a quality metric; and the final is a specific concern with regard to Yoganandan et al.’s recommendations for the use of Kolmogorov-Smirnov tests.

First Yoganandan et al., recommend using the Akaike information criteria (AIC) to choose between functional forms (e.g. Weibull, log-normal, or log-logistic) of the injury risk function. In spirit, this is a sound recommendation. In practice, most post-mortem human subject (PMHS) tests involve such small sample sizes that AIC is unable to reliably make the correct decision. To illustrate, we conducted a simulation experiment with  $n = 50$  subjects (large for a PMHS study). When the true injury risk function was a Weibull distribution, AIC selected log-normal 50% of the time and Weibull only 14% of the time,

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