



RESPONSE TO COMMENT ON BOYKO AND JENSEN

Do We Know What Homeostasis Model Assessment Measures? If Not, Does It Matter? *Diabetes Care* 2007;30:2725–2728

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Diabetes Care 2015;38:e214 | DOI: 10.2337/dci15-0021

My colleagues and I appreciate Dr. Rivas-Crespo's interest in our work and his confirmation that our reformulation of HOMA to demonstrate that it is no different than QUICKI is mathematically correct (1). Rivas-Crespo does take issue with the value of the constant in the reformulation that we presented in 2007 (2). We agree that the value of this constant does depend on the units of measurement used for both the HOMA and QUICKI equations and that the formula we presented is appropriate when glucose is measured in mmol/L and insulin is measured as $\mu\text{U/mL}$. We do not understand his mention of an error, as neither our reformulation of HOMA as QUICKI nor the work he references by Antuna-Puente et al. (3) appears to be in error, nor do we understand why he writes that "the mathematical facts appear to be right, but the resulting equation . . . does not work" (1). Rivas-Crespo does not describe what "does not work." Antuna-Puente et al. did not incorporate our formula into their equations for either HOMA or QUICKI but instead explored how well different versions of

these formulas and components of the HOMA formula (e.g., glucose and insulin alone without a constant) or logarithmic transformation of it correlate with insulin sensitivity as measured by the euglycemic-hyperinsulinemic clamp. They also examined the reproducibility of QUICKI and HOMA in the measurement of insulin sensitivity. Furthermore, Antuna-Puente et al. made no direct comparisons between insulin sensitivity measured by HOMA and QUICKI using the formula we developed showing the equivalency between HOMA and QUICKI. Therefore, we do not understand why Rivas-Crespo considers our work as leading others to err, as he implies in his article. We appreciate his bringing to our attention the interesting article by Antuna-Puente et al., as our prior work appears to have motivated this research, at least in part.

The purpose of the formula we presented in our 2007 article was to demonstrate the mathematical equivalence of HOMA and QUICKI, not to propose it as an alternative to either standard formula for these assessments of insulin

sensitivity. Nevertheless, we do not understand why Rivas-Crespo describes these alternative formulations as "somewhat imprecise," given that he writes earlier in his article that "the mathematical facts appear to be right" (1). With regard to the presence of error, the only evidence we can find for it is the erroneous claim in his article that it exists.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

References

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