

## INTRODUCTION

Researchers, clinicians, and individuals commonly use blood meters to assess glucose and ketone levels. Diabetics use these on a daily basis. The cost for the test strips adds up. Currently, companies are developing less expensive options, like the Keto-Mojo. However, these products need to be assessed for validity and reliability before used in research and clinics. The purpose of our study was to compare glucose and ketone measures from the Keto-Mojo meter (Keto-Mojo; Napa, CA, USA) to the validated (Wittrock, 2013) but more costly Precision Xtra meter (Precision Xtra; Abbott Diabetes Care Inc., Mississauga, ON, Canada). Reliability of both meters was also assessed.

## METHODS

This study included a cross-over, randomized, double-blinded design with 13 participants, aged 18-29, that visited the lab three times with a one-week washout period between each visit. One of the following three supplements were consumed with 12-ounces of water each visit: placebo, natural exogenous ketone salts (NK), or synthetic exogenous ketone salts (SK). Blood glucose and ketone levels were assessed twice per meter at baseline and 30- (ketone) or 60-minutes (glucose) post-drink with Precision Xtra (PX) and Keto-Mojo (KM) meters and in accordance with precise blood-sampling protocols described previously (Ginsberg, 2009; Freckmann, 2014). Reliability (for 24 time-points) and validity (for 12 time-points) of the KM meter were statistically assessed with Pearson correlation coefficients with significance set at  $p < 0.05$ .

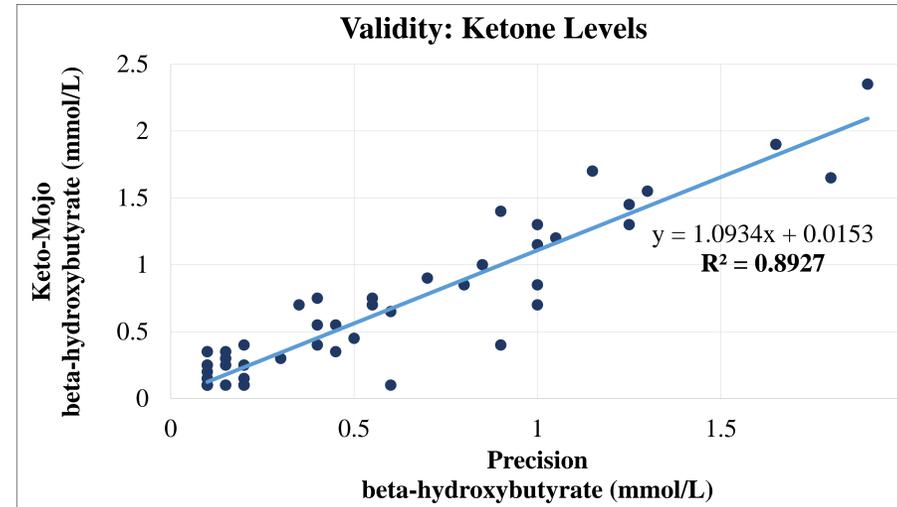
## REFERENCES

Wittrock, J. A. M., Duffield, T. F., & LeBlanc, S. J. (2013). Validation of a point-of-care glucometer for use in dairy cows. *Journal of dairy science*, 96(7), 4514-4518.

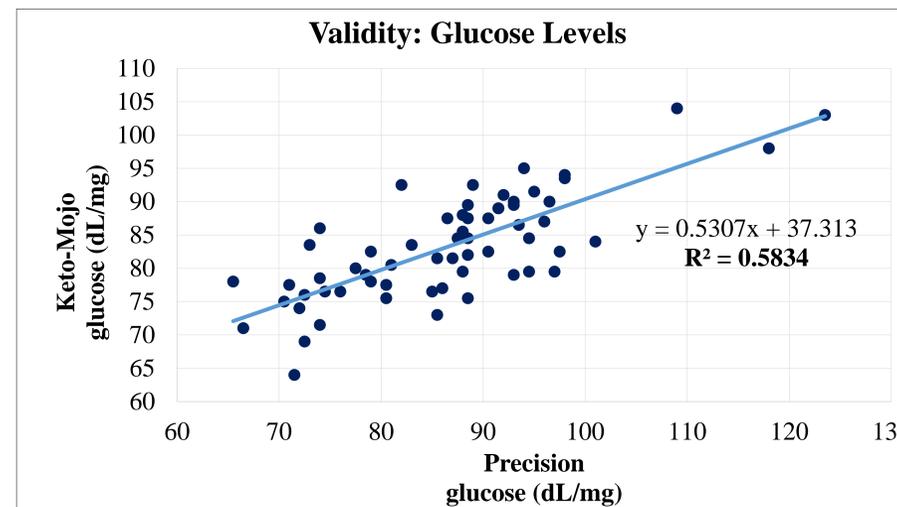
Ginsberg, B. H. (2009). Factors affecting blood glucose monitoring: sources of errors in measurement. *Journal of diabetes science and technology*, 3(4), 903-913.

Freckmann, G., Pleus, S., Baumstark, A., Schmid, C., Link, M., & Haug, C. (2014). Self-monitoring of blood glucose: impact of a time delay between capillary blood sampling and glucose measurement. *Journal of diabetes science and technology*, 8(6), 1239-1240.

## RESULTS



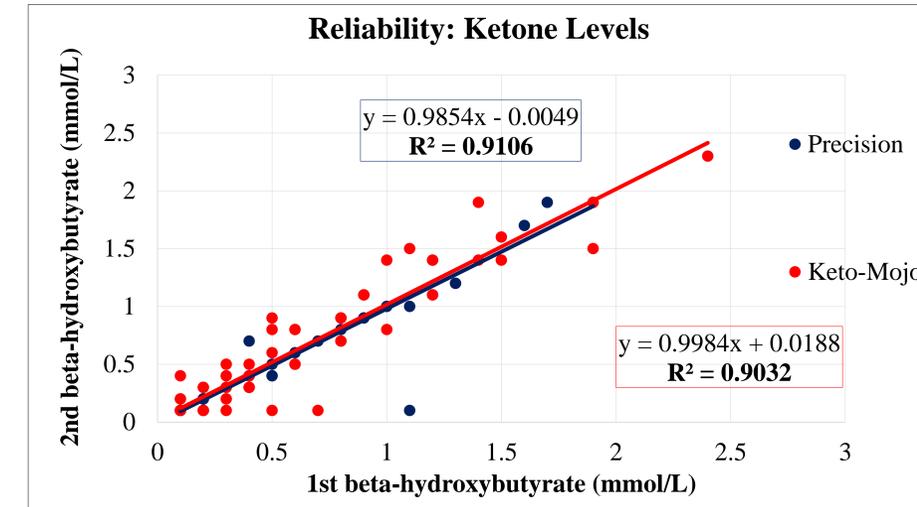
**Figure 1. Legend.** Comparison of blood ketone levels between the Precision Xtra and Keto-Mojo blood meters over 12 time-points. There was a significant positive relationship between the blood ketone measurements from the Precision Xtra and Keto-Mojo,  $r(70) = 0.94$ ,  $p < 0.001$ .



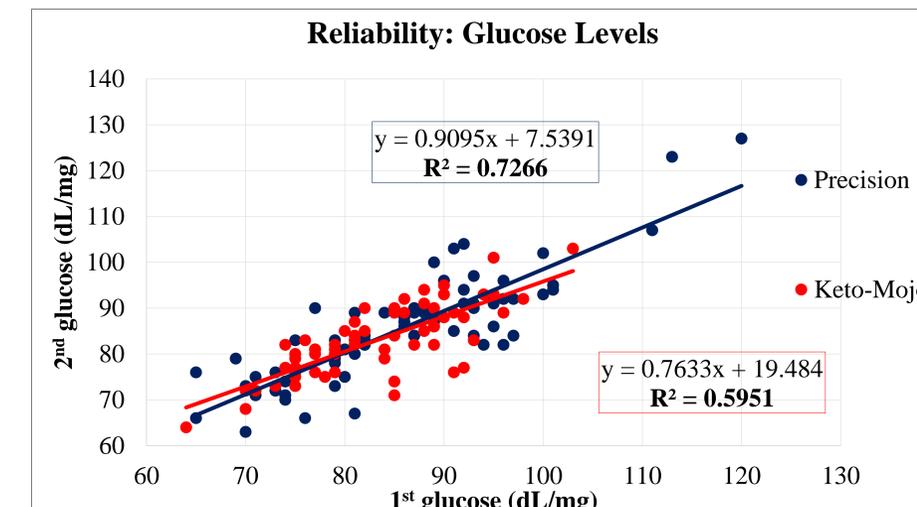
**Figure 2. Legend.** Comparison of blood glucose levels between the Precision Xtra and Keto-Mojo blood meters over 12-time points. There was a significant positive relationship between the blood glucose measurements from the Precision Xtra and Keto-Mojo,  $r(60) = 0.76$ ,  $p < 0.001$ .

## DISCUSSION

Overall, the KM should be considered a valid and reliable meter when compared to the PX meter. Further validation studies are being prepared to compare ketone levels from both meters with mass spectrophotometry.



**Figure 3. Legend.** Comparison of blood ketone levels from the individual meters, over 24-time points. There was a significant positive relationship between the Precision Xtra's 1<sup>st</sup> and 2<sup>nd</sup> blood ketone measurements,  $r(69) = 0.95$ ,  $p < 0.001$ , and between the Keto-Mojo's 1<sup>st</sup> and 2<sup>nd</sup> blood ketone measurements,  $r(70) = 0.95$ ,  $p < 0.001$ .



**Figure 4. Legend.** Comparison of blood glucose levels from the individual meters, over 24-time points. There was a significant positive relationship between the Precision Xtra's 1<sup>st</sup> and 2<sup>nd</sup> blood glucose measurements,  $r(69) = 0.95$ ,  $p < 0.001$ , and between the Keto-Mojo's 1<sup>st</sup> and 2<sup>nd</sup> blood glucose measurements,  $r(70) = 0.95$ ,  $p < 0.001$ .

## ACKNOWLEDGEMENTS

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