

Diabetes 2019: Linear regression analysis and correlation findings in hemoglobin and oxidation studies in diabetic blood: Effects of hexyl nitrite - John Philip Tarburton - National University Los Angeles, USA

John Philip Tarburton

National University Los Angeles, USA

For hexyl nitrite induced oxidation of hemoglobin a linear regression line was calculated from 40 donors, 20 of whom were type 2 diabetics and 20 of whom were normal or non-diabetics, using all their HbA1C (%) values and the measured hemoglobin oxidation times. The resultant equation was that of a straight line which is most accurately described by the equation $Y = 5.32 - 0.31X$ where X = percent of HbA1C and Y = hemoglobin oxidation time in minutes. The standard deviation of points around the fitted line was 0.421 and the standard errors of the slope and intercept were 0.0190 and 0.182, respectively. The product moment correlation coefficient

(r) was found to be - 0.93. Thus, based on the fact that the correlation coefficient obtained is less than -0.75 this study demonstrates that there is a very good to excellent inverse relationship between HbA1C percentage and the hemoglobin oxidation time for hexyl nitrite. Moreover, this study demonstrates that this linear equation can be of good use to predict rates of hemoglobin oxidation times by hexyl nitrite based solely on its HbA1C % value. It follows then that such an empirical equation of this type, i.e., $Y = mx + b$, could be of good predictive value as to the susceptibility of hemoglobin induced oxidation by other alkyl nitrites.