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## Human hematocrit and gender: Is there an oscillatory pattern and do they differ?

Preliminary data from two non-mammalian species suggest the existence of oscillations in hematocrit (the ratio of erythrocytes to plasma) throughout the year. It is not yet known if these oscillations translate to humans. We hypothesized that hematocrit would oscillate throughout the year in humans. Using a retrospective analysis of an existing dataset, we examined hematocrit values in a sample of healthy adults consisting of men ( $n=63$ ) and women ( $n=123$ ) with no history of diabetes, anemia, cardiovascular, pulmonary, autoimmune or renal disease. Hematocrit was measured in triplicate using heparinized micro-hematocrit capillary tubes, centrifuged (Thermo IEC MICRO-MB, 13,460xG) for five minutes, and read using a microcapillary reader (IEC). Data were analyzed using ANOVA and are presented as mean  $\pm$  SD. Data for men and women combined demonstrated no variation or pattern in hematocrit with respect to month ( $P=0.87$ ). Differences in hematocrit were observed based on gender ( $P<0.0001$ ); specifically, women ( $38.7 \pm 2.3\%$ ) had a lower mean hematocrit than men ( $42.3 \pm 2.7\%$ ). When examined visually, the data further suggest opposing oscillations between men and women throughout the year. Hematocrit oscillations can be associated with changes in O<sub>2</sub> delivery, viscosity, and shear stress, all of which have implications in cardiovascular health. Since at this point in time the pattern can also be explained by random error, a prospective, repeated measures time series study needs to be performed to determine if these oscillations in hematocrit exist.