

We addressed the stability of biological samples in prolonged drone flights by obtaining paired chemistry and hematology samples from 21 adult volunteers in a single phlebotomy event-84 samples total” Amukele et al (2017).

Abstract:

OBJECTIVES: We addressed the stability of biological samples in prolonged drone flights by obtaining paired chemistry and hematology samples from 21 adult volunteers in a single phlebotomy event-84 samples total.

METHODS: Half of the samples were held stationary, while the other samples were flown for 3 hours (258 km) in a custom active cooling box mounted on the drone. After the flight, 19 chemistry and hematology tests were performed.

RESULTS: Seventeen analytes had small or no bias, but glucose and potassium in flown samples showed an 8% and 6.2% bias, respectively. The flown samples (mean, 24.8°C) were a mean of 2.5°C cooler than the stationary samples (mean, 27.3°C) during transportation to the flight field as well as during the flight.

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CONCLUSIONS: The changes in glucose and potassium are consistent with the magnitude and duration of the temperature difference between the flown and stationary samples. Long drone flights of biological samples are feasible but require stringent environmental controls to ensure consistent results.

Reference:

Amukele, T.K., Hernandez, J., Snozek, C.L.H., Wyatt, R.G., Douglas, M., Amini, R. and Street, J. (2017) Drone Transport of Chemistry and Hematology Samples Over Long Distances. American Journal of Clinical Pathology. September 5th. .



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