

## Letter to the Editor re: Polycythemia Prevalence and Risk Factors in Pilots

Dear Editor:

With great interest we read the article by Thanapaisan et al.<sup>1</sup> The purpose of this study was to investigate the occurrence of polycythemia in pilots and identify associated risk variables. A descriptive cross-sectional study was carried out in 2018 at the Royal Thai Air Force Institute of Aviation Medicine in Bangkok, Thailand. Data were gathered from both paper and computer-based medical records of pilots seeking a Class 1 Flight Medical Certificate. Of the 386 records examined, 29 pilots (7.5%) satisfied the polycythemia criterion. Statistical research demonstrated a favorable relationship between body mass index and both hemoglobin and hematocrit concentrations. Nonpressurized pilots were found to be an independent predictor of polycythemia, with a probability ratio of 4.3.

One significant drawback of this study is the use of a cross-sectional design, which limits the capacity to demonstrate a causal association between polycythemia and possible risk factors. Furthermore, the use of paper records may induce biases associated with data completeness and validity. Also, while the sample size is appropriate, it may restrict the generalizability of the findings outside the specific population analyzed. The emphasis on a few variables, such as body mass index and flying circumstances, overlooks other risk factors, including ambient conditions, hydration state, and hereditary risk. This could affect the prevalence of polycythemia among pilots.

Future research could use longitudinal designs to further investigate causal linkages and changes in polycythemia prevalence in pilots over time. It would be useful to broaden the study to include a bigger and more diverse sample of pilots, potentially from other geographic regions and aviation sectors, including commercial and private aircraft. Furthermore, future study efforts may investigate the effects of additional variables,

including long-term altitude exposure, lifestyle factors, and hereditary disorders, to acquire a more complete understanding of polycythemia risk in aviation workers.

Incorporating new technologies into future studies could improve data collection and analysis. For example, online questionnaires and digital monitoring systems may supplement traditional record-keeping, allowing for real-time data collection and more efficient analysis. Researchers can also employ biometric technology and remote monitoring to collect physiological data, such as oxygen saturation and body hydration status, which could have a significant impact on the risk of polycythemia in pilots. Furthermore, investigating genetic or biomarker indicators linked to polycythemia may reveal underlying biological pathways and aid in the identification of at-risk pilot groups.

**Hinpetch Daungsupawong**

*Private Academic Consultant  
Phonhong, Lao People's Democratic Republic*

**Viroj Wiwanitkit**

*Department of Research Analytics  
Saveetha Dental College and Hospitals  
Saveetha Institute of Medical and Technical Sciences  
Chennai, India*

### REFERENCE

1. Thanapaisan P, Plaingam M, Manyanont S. Polycythemia prevalence and risk factors in pilots. *Aerosp Med Hum Perform.* 2024; 95(9): 683–687.

Reprint and copyright © by the Aerospace Medical Association, Alexandria, VA.

DOI: <https://doi.org/10.3357/AMHP.6579.2024>