?The Role of Developmental Plasticity in Adaptation to High Altitude in Highland and Lowland Deer Mice?

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Signs of developmental plasticity occur when animals are exposed to changes in their environment. Lowland deer mice, as opposed to their highland counterparts, are projected to experience a more significant change in hemoglobin and hematocrit levels after exposure to high altitude conditions. My mentor sampled two populations of deer mice, highland and lowland, from across North America and broke each population into five treatment groups. Each treatment group was exposed to hypoxia at different points in their development. Blood samples were collected by my mentor and analyzed to identify levels of both hemoglobin and hematocrit in the red blood cells. I analyzed the data using statistical software R Studios and further analyzed the relationships between hemoglobin and hematocrit levels. I looked to see if there was a distinction between post-treatment levels of hemoglobin and hematocrit based on population (highland vs. lowland) and/or the point in development that the mouse was exposed. Results demonstrated that, as predicted, the lowland population experienced a more pronounced increase in hemoglobin and hematocrit levels than the highland population, indicating that they experienced a more plastic response to a change in their environment.

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