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Mitos On The Move: Powerhouse Of Migratory Flight

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Every fall and spring, billions of birds undertake the ultra-marathon that is migration. Migration is a monumental challenge, requiring many adaptations for birds to complete the journey. One poorly understood area of adaptations is the mitochondria – the powerhouse of the cell. The objective of my PhD research is to investigate how birds alter their flight muscle mitochondria to meet the demands of migratory flight. My first study investigates how mitochondria are affected by damage from simulated migratory flight. Next, I am investigating how birds alter their mitochondria during seasonal preparation for migration. My last study is to investigate how mitochondria vary with the difficulty of migration: long-distance vs. short-distance vs. non-migratory. My PhD research will shine a light on metabolic mechanisms that birds use to overcome the challenges of migration and how mitochondria are modified by animals to overcome extreme endurance exercise.