



**SPRING 2021**

**Biochemistry and Molecular Biology  
Brown Bag Series**

**Kourtney Sprague**

M.S. Student

***“Reconstruction of Gut Microbiome via  
Intermittent Fasting”***

Tuesday, March 30, 2021

11:00 AM

**Please contact x3249 if you would like to attend but  
did not receive an emailed link.**

Lab: Oleg Paliy, Ph.D.

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Boonshoft  
School of Medicine  
WRIGHT STATE UNIVERSITY



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<https://science-math.wright.edu/biochemistry-and-molecular-biology>

## **Abstract**

### **Reconstruction of Gut Microbiome via Intermittent Fasting**

The benefits of intermittent fasting are being studied across many facets of health. We know that physiologically fasting results in a metabolic switch from liver-derived glucose to adipose-cell derived ketones to be used as energy and signaling molecules. Fasting down-regulates inflammation and increases expression of antioxidant defenses, and it activates pathways for DNA repair and autophagy. The effect that intermittent fasting has on gut microbiome has not been investigated in detail. We know that disruption of gut microbes' diurnal oscillations lead to metabolic disbalance in the host. In times of gut rest, microbes undergo detoxication and motility and in times of activity, microbes undergo DNA repair, energy metabolism, and cell growth. These daily fluctuations of microbial composition and function are mainly influenced by feeding patterns and change of these feeding patterns results in dysbiosis. In this study, we will use an in vitro system to simulate the conditions of the human colon to assess whether intermittent fasting selects for a specific microbiota community and functions. We will also analyze short-chain fatty acid and antioxidant production and evaluate how these relate with specific microbes present in these communities.