



SPRING 2022

**Biochemistry and Molecular Biology
Brown Bag Series**

Kourtney Sprague

M.S. Student

*“Reconstruction of human gut microbiome via
intermittent fasting”*

Tuesday, March 29, 2022

11:00 AM

Location 135 Oelman Hall

**Lab:
Oleg Paliy, Ph.D.**



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

Reconstruction of human gut microbiome via intermittent fasting

The benefits of intermittent fasting have been studied across many facets of health. It is known 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, increases expression of antioxidant defenses, and activates pathways for DNA repair and autophagy. 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 use an in vitro system to simulate the conditions of the human colon to evaluate gut microbiome fluctuations when switched to a once-per-day feeding pattern. Once-per-day feedings result in a major switch in gut microbiome composition and short-chain fatty acid production seen across all three vessels.