



The Healthy Dairy Worker Study

YEAR 5 of 6 (2016-2022)

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Challenge

Dairy workers are commonly exposed to microbes and allergens on the job. However, little is known about whether these exposures provide health benefits or contribute to an increased risk of illness. The “hygiene hypothesis,” suggests that exposure to microbes on farms may have immune benefits and could be play a role in whether farmworkers remain healthy or develop illnesses.

Project Overview

The study evaluates the impact of these factors on respiratory and gut health by measuring the nasal and gut bacteria present in the body and comparing it to respiratory function of workers. To test this hypothesis, we will observe changes in the microbiome and health status for newly hired dairy workers, existing dairy workers and community members over a two-year period. Our goal is to determine if the quantity and type of bacteria in the microbiome of workers are related to the participant’s health or leaving the job.

"Este estudio me ha dado la oportunidad de platicar con me hija y esposa sobre como puedo mejorar mi salud cuando trabajo con las vacas."

"This study has given me the opportunity to talk with my daughter and wife about how I can improve my health when I work with cows."
-WA Dairy Worker



WE FOUND DAIRY WORKERS MAY HAVE:



Findings to Date

- The study did not find higher levels of asthma or airway inflammation among dairy workers compared to community members who did not work in dairy. However, it did find some evidence that some dairy workers were developing an allergy to cows ([Marcken, MPH Thesis, 2020](#)). Marcken, MPH Thesis, 2020
- Dairy workers were found to perform better on breathing tests compared to community members, and the dairy workers who performed the best on the breathing test had greater contact with animals ([Carmona, MPH Thesis, 2019](#)).

Accomplishments

- Comparing the gut microbiomes of dairy workers to those of community members, the study has found increased abundance of certain “healthy” bacteria among the dairy workers that may be protective against inflammation.
- Significant microbiome differences have been identified between subjects with and without asthma. Persons with asthma had a higher abundance of certain bacteria associated with inflammation.
- Developed an eLearning Online Course, Infection Prevention & Control on Farms in collaboration with Continuing Education Programs in the UW Department of Environmental and Occupational Health. The course covers common risk factors and transmission modes of zoonotic diseases, offers best practices for prevention of disease threats, and shares resources for infection prevention and control on the farm.

Next Steps

With the additional year of funding, the study has been able to focus on recruiting new-to-dairy workers and follow them as they adjust to the dairy work environment. Through the support of a collaboration with Quest Diagnostics, the study has added COVID-19 testing to the study protocols, shedding light on vaccination and COVID-19 illness rates among the workers and controls. Other planned developments are to finish collecting samples and have the samples sequenced. The study aims to collect 350 more samples by May 2022. A scientific manuscript reporting on the findings about dairy work and respiratory health (based on the work of two OHHA Master's students and one PhD student supported with OHHA funds) is almost complete and will be submitted to a peer-review journal by the end of October 2021. We plan to submit a manuscript reporting on microbiome analysis to a peer-reviewed journal by the end of 2021. Additional publications are planned for 2022.

Resources

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