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## Effect of Sin Lek rice intervention on cognitive function, dietary patterns, and fecal microbiota of elementary school children in Chiang Rai, Thailand

Angie Setthavongsack  
*Portland State University*

Siam Popluechai  
*Mae Fah Luang University*

Jackilen Shannon  
*Oregon Health & Science University*

Justin Denny  
*Oregon Health & Science University*

Eleni Gentekaki  
*Mae Fah Luang University*

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Setthavongsack, Angie; Popluechai, Siam; Shannon, Jackilen; Denny, Justin; Gentekaki, Eleni; Kespechara, Kongkiat; Grunec, Lucsame; Sharpton, Thomas J.; Niwed, Kullawong; and Marriott, Lisa K., "Effect of Sin Lek rice intervention on cognitive function, dietary patterns, and fecal microbiota of elementary school children in Chiang Rai, Thailand" (2022). *OHSU-PSU School of Public Health Annual Conference*. 2. <https://pdxscholar.library.pdx.edu/publichealthpdx/2022/Posters/2>

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### **Presenter Information**

Angie Setthavongsack, Siam Popluechai, Jackilen Shannon, Justin Denny, Eleni Gentekaki, Kongkiat Kespechara, Lucsame Gruneck, Thomas J. Sharpton, Kullawong Niwed, and Lisa K. Marriott

Effect of Sin Lek rice intervention on cognitive function, dietary patterns, and fecal microbiota of elementary school children in Chiang Rai, Thailand

Setthavongsack, A., Popluechai, S., Shannon, J., Denny, J., Gentekaki, E., Kespechara, K., Gruneck, L., Sharpton, T.J., Niwed, K., Marriott, L.K.

Thailand has struggled with malnutrition rates in young children. Rice is a key component of Southeast Asian diets and a whole grain rice varietal (Sin Lek) may support improved nutrition. Diet can influence cognitive function and human gut microbiota, which were explored in the context of a rice intervention. We conducted a pilot study using a non-randomized, crossover clinical trial of Sin Lek rice versus traditional white rice consumption in elementary school children in Chiang Rai, Thailand. Outcomes related to diet, anthropological factors, cognitive function (e.g., short-term working memory, attention, impulsivity), and gut microbial populations were measured at baseline and over a period of 71 weeks. A total of 127 school children (grades 1-6) were enrolled and completed study measures, which were interrupted by COVID-19. At baseline, females had higher short-term working memory than males. Differences in attention and impulsivity were observed based on feeding method at the time of birth. Diet and cognitive function were not related at baseline. Eleven bacterial taxa and total bacteria were measured and revealed gut microbiota associations with dietary behavior and anthropology. Ongoing analyses are exploring the relationship between microbial composition and cognitive outcomes. Our study was effective at measuring diet, cognitive function, and microbiome outcomes among Thai school children. Sin Lek rice was accepted by Thai school children. Preliminary results highlight relationships between dietary habits and gut microbiome composition at baseline. Further analyses are needed to examine the contribution of the rice intervention on cognitive function and gut microbial composition.