

# Metabolite Feature: 3-Methylxanthine

## 3-Methylxanthine and the Gut Microbiome

3-Methylxanthine is a purine metabolism-breakdown product of caffeine and theophylline. Gut bacteria play a role in the metabolization of caffeine into downstream metabolites like 3-methylxanthine and uric acid.

Metabolites of the purine pathway are significant because they affect both the gut and the brain. In the gut, 3-methylxanthine increases [hydrochloric acid and pepsin secretion, which both aid in digestion](#).

Purines are key components of cellular systems (e.g., ATP and NAD), cellular signaling, and, along with pyrimidines, are involved in RNA and DNA production.

## Recommendations Related to 3-Methylxanthine

- 3-Methylxanthine levels are linked to [caffeine intake](#). If caffeine consumption is excessive, consider reducing consumption or limiting to 1–2 cups (coffee, tea, matcha, or green tea) per day.
- The addition or exclusion of 1–2 cups of caffeinated beverages can also be beneficial for balancing 3-methylxanthine levels.

## Talking Points

- If it is recommended to include caffeinated beverages and they already being consumed, continue to include proper serving size of caffeine in the morning.
- If caffeine is not preferred but recommendations include caffeine, consider lightly caffeinated beverages like white tea or green tea. Consider brewing caffeinated teas with caffeine-free herbal tea to dilute caffeine and avoid jitters.
- Support reduced caffeine intake by recommending other gut-healthy beverages like water, herbal tea, sparkling water, or low-sugar kombucha.

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