Evaluating Inflammatory Tone Following Consumption of Full-fat or Non-fat Yogurt: Peripheral Blood Mononuclear Cell Inflammatory Response

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Introduction

- Many unique, dairy-derived fatty acids have been shown to elicit beneficial effects on chronic low-grade inflammation, but the effect of dairy fat within its food matrix remains unclear.
- Hypothesis: Short-term consumption of three daily servings of full-fat yogurt, compared to non-fat yogurt, beneficially affects inflammatory tone in individuals with prediabetes.
- Objective: Compare the inflammatory response of individuals with prediabetes after a diet with and without dairy fat.

Methods

- A randomized controlled-feeding crossover trial was conducted.
- Two, 3-week experimental diet periods included the consumption of either full-fat (3.25%) yogurt or non-fat yogurt (three servings per day) and were separated by a 1-week washout period.
- After each diet period, peripheral blood mononuclear cells were isolated and incubated in media with or without lipopolysaccharide (LPS) for 24 hr.
- Cell supernatants were analyzed for interleukin (IL)-1β, IL-6, IL-8, IL-10, and tumor necrosis factor-α (TNF-α) concentrations.

Results

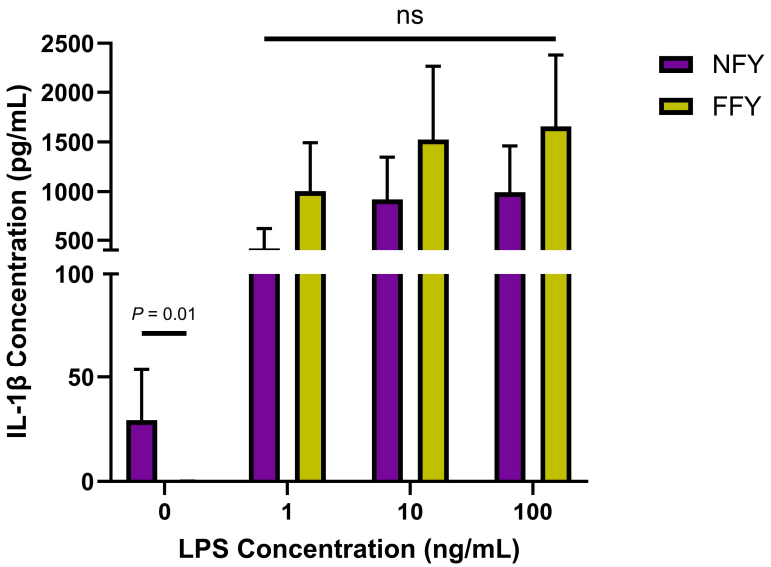

Figure 1. Interleukin (IL)-1β concentrations in cell supernatants of unstimulated and lipopolysaccharide (LPS)-stimulated peripheral blood mononuclear cells. FFY, full-fat yogurt diet. NFY, non-fat yogurt diet.

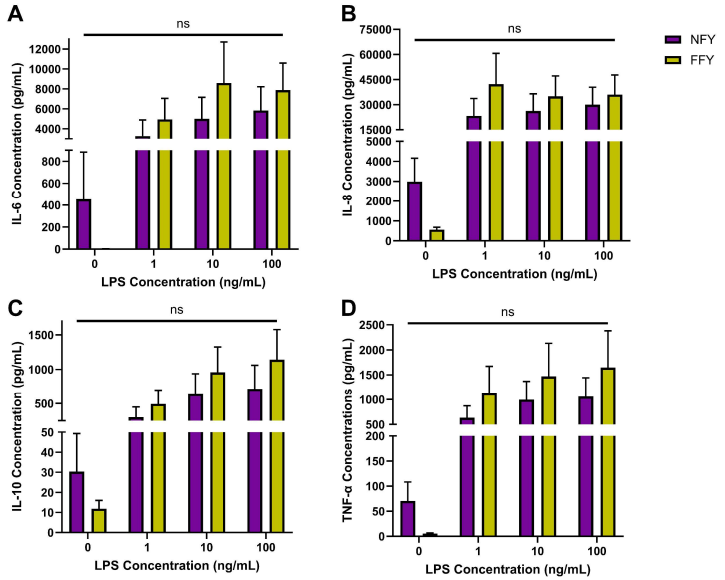

Figure 2. Interleukin (IL)-6 (A), IL-8 (B), IL-10 (C), tumor necrosis factor (TNF)-α (D) concentrations in cell supernatants of unstimulated and lipopolysaccharide (LPS)-stimulated peripheral blood mononuclear cells. FFY, full-fat yogurt diet. NFY, non-fat yogurt diet.

Conclusion: Minimal differences were observed between diets with three daily servings of full-fat or non-fat yogurt indicating that short-term consumption of dairy fat may not impact inflammation via peripheral blood mononuclear cell cytokine secretion.

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