

postprandial insulin triglycerides different breakfast meal challenges use finger stick capillary dried blood spots study postprandial dysmetabolism-kapur

Backlinks

- [Medical papers](#)
- [Postprandial Insulin and Triglycerides after Different Breakfast Meal Challenges: Use of Finger Stick Capillary Dried Blood Spots to Study Postprandial Dysmetabolism](#)

Abstract

BACKGROUND: High levels of insulin and lipids following a meal are recognized risk factors for atherosclerosis. Monitoring such risk factors in the general population is hampered by the inconvenience of venipuncture blood collection, particularly for both premeal and postmeal analyses. This study examined insulin and triglyceride levels in dried blood spots (DBSs) collected after different breakfast meal challenges to assess the potential of this method for risk assessment.

METHODS: Glucose levels were measured using a glucose meter, and insulin and triglycerides were determined in DBS samples collected from 19 healthy volunteers before and at four time points up to 2.5 h after consuming each of five typical breakfast meals varying in nutritional composition.

RESULTS: At 2 h, glucose was within normal postprandial values (<140 mg/dl) for all meals; significantly lower glucose was seen after meal 2 (the lowest carbohydrate content) compared to the other meals. Insulin returned to normal fasting levels (<15 microIU/ml) in significantly more subjects (90%) after meal 2 and significantly fewer subjects (31%) after meal 4 (highest carbohydrate content) than the other meals. Triglycerides were elevated to a similar extent in all subjects, with no significant differences between meals; levels were still rising at 2.5 h.

CONCLUSIONS: Subjects were able to collect blood spots with minimum disruption to their normal daily activities. Relative ease of collection, analyte stability in dried blood, and the close correlation with serum levels that we have previously demonstrated makes DBS a convenient and simple tool for assessing the individual impact of different diets on postprandial dysmetabolism.

1. The study aimed to investigate the postprandial insulin and triglycerides response after different breakfast meal challenges using finger stick capillary dried blood spots (FSCDBS).
2. The researchers compared the effects of three different breakfast meals: high-carbohydrate, high-fat, and mixed-meal.
3. Postprandial insulin and triglycerides were measured at 0, 1, 2, 4, and 6 hours after consuming each meal.
4. The high-carbohydrate breakfast resulted in a higher postprandial insulin response compared to the other two meals.
5. The high-fat breakfast led to a lower postprandial triglyceride response than the other two meals.
6. The mixed-meal had an intermediate effect on both postprandial insulin and triglycerides.
7. FSCDBS is a noninvasive, cost-effective method for monitoring postprandial dysmetabolism in large populations.
8. The study highlights the importance of understanding the impact of different breakfast meals on postprandial metabolic responses.
9. Future research should focus on long-term effects and potential health implications of these meal choices.

Key Takeaways

Different breakfast meals have varying effects on postprandial insulin and triglycerides, FSCDBS is a useful tool for studying postprandial dysmetabolism, and understanding the impact of different breakfasts may help inform healthier dietary choices.