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🌐 Oral Fat Tolerance Test (OFTT) in Human

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DISCLAIMER

The authors declare that there are no conflicts of interest associated with this research study.

ABSTRACT

Following the consumption of a standardized high-fat meal, the oral fat tolerance test (OFTT) assesses the postprandial lipemic (PPL) response of blood triglycerides (TG). Blood samples are obtained four hours after meal ingestion, with a targeted TG level of ≤ 220 mg/dL considered within the normal range. An altered PPL response is defined by TG levels exceeding 220 mg/dL. The PPL is influenced by various factors, such as the quality and type of foods ingested in the diet, physical exercise, body metabolism, and genetics. The PPL response may predict the development of Atherosclerotic Cardiovascular Disease, thus serving as an early marker of the atherosclerotic process associated with metabolic disorders.

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 We use this protocol and it's working

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PROTOCOL REFERENCES

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MATERIALS

OFTT meal

- 1. Kitchen blender
- 2. Milk cream (Nestlé)
- 3. Cocoa powder (Mãe Terra, São Paulo, Brazil)
- 4. Dry nonfat milk (Glória, São Paulo, Brazil)
- 5. Sugar
- 6. Cold water
- 7. Disposable plastic cup (500 mL)
- 8. Straw (diameter 21 cm x 10 mm)

Use the table below to mix the ingredients:

Ingredient	1 milkshake	2 milkshakes	3 milkshakes	4 milkshakes
Milk cream	290 g	580 g	870 g	1,160 g
Cocoa powder	25 g	50 g	75 g	100 g
Dry nonfat milk	24 g	48 g	72 g	96 g
Sugar	11 g	22 g	33 g	44 g
Cold water	50 mL	100 mL	150 mL	200 mL

BEFORE START INSTRUCTIONS

Depending on the blender available, preparing the volume of 4 meals at once is more practical because there are losses on the blender's wall. Participants must fast for 8 to 10 hours before blood collection. They should avoid consuming fatty foods and engaging in physical activity in the 72 hours before the test.

OFTT meal preparation (milkshake)

15m

1 Identify the cup with the participant's name.

2 Weigh the empty cup and record it (W1).

1m

3 Weight the ingredients

5m

4 Add the ingredients to the blender and mix.

2m

5 Distribute the milkshake into plastic cups.

6 Weigh the whole cup and record it (W2).

7 Place the lid and straw.

Note

The meal should be served immediately after preparation. If it sits on the countertop too long (more than 30 min), it may separate into layers, and the visual aspect reduces participant acceptability.

Expected result

The OFTT meal should resemble a cold chocolate milkshake. This appearance increases the milkshake acceptability by the research participant.

Oral Fat Tolerance Test (OFTT)

4h 30m

8 Collect venous blood from the arm using a 5 mL syringe and reserve it in a serum separator tube.

9 Offer the test meal to the study participant.

10 Monitor the time it takes for the participant to consume the milkshake. They should consume as much as possible.

11 After consumption is complete, weigh the cup (W3).

12 Collect a new venous blood sample from the arm 4 hours after the start of meal ingestion.

Calculating milkshake intake

- 13 Apply the following formula:
$$Intake(g) = (W2g - W1g) - W3g$$

Serum triglyceride assay

- 14 Centrifuge the blood at 2,000 x g for 10 minutes.
- 15 Transfer the serum to 2.0 mL microtubes.
- 16 Conduct the biochemical assay following the manufacturer's instructions.