

¹³C Triolein Breath Test

RELEVANCE:

Studying pancreatic lipase activity in cystic fibrosis, investigating Crohn's disease, fat malabsorption and aetiology of steatorrhea, particularly with respect to long chain fatty acids.

For investigating the metabolism of medium chain fatty acids [¹³C]trioctanoin breath test should be preferred.

SUBSTRATE / TEST MEAL:

Oral dose of 17 mg/kg body mass of 1-carboxyl-¹³C₃-triolein (80-99% ¹³C)

STATUS OF PATIENT:

After overnight fast. (Under one year old individuals fast for four hours.) Patients should be hospitalised and ingest 3 g fat per kg body mass and day for three days and during the test. Simultaneous intake of carbohydrates retards fat absorption. Except for sips of water no additional food or liquids should therefore be allowed for that time.

TIMING OF SAMPLE COLLECTION:

Breath samples are taken immediately before substrate ingestion and then at 30 minute intervals over six hours.

EVALUATION:

FANci-software yields 6h-%cumulated dose CD. In 10 normal and 17 patients with documented steatorrhea the sensitivity was 100% and the specificity 89%, if a peak excretion rate of ¹³C of 2.7% dose/h is used as cut-off value.

A peak excretion rate of ¹³C of 2.7% dose/h is recommended as cut-off value for distinguishing fat malabsorption from normal fat metabolism.

REFERENCES:

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