H2 – Breath Gas Test

bio|vis' DIAGNOSTIK MVZ

Fructose Malabsorption

This breath gas test serves for the determination of fructose malabsorption. It is not suitable in case of suspected hereditary fructose intolerance, which is a very rare congenital disease coming along with fructose metabolism disorders. In case of respective questions, please call us (06431-21248-0)

Determination of Fructose Malabsorption

In case of fructose malabsorption the fructose consumption is disordered because of incomplete fructose absorption by small intestine walls and thus large amounts reach the colon. In 50 – 60 % of the cases fructose malabsorption leads to intestinal complaints. Frequently patients complain about diarrhoea, stomach cramps or severe flatulence. 40 -50 % of the patients are relatively free of complaints or have symptoms outside of the intestinal tract, like migraine-type headaches (10-15%), depressions (15-20%) or sleeping disorders (10-15%)

The Principle:

In case of fructose malabsorption fructose consumption of from the small intestine is disordered. After consumption the not reabsorbed sugar reaches the colon, where it is metabolized by intestinal bacteria. During this process large amounts of hydrogen develop, pass into the blood and from there to the lung, from where it is exhaled by normal breathing.

What is required?

For the H2-breath gas test the following requirements have to be complied with:

- One day before making the test please avoid high-fibre foods (wholemeal products, nuts, fruits, beans, lentils and peas). Only eat light food like for example fish, turkey and rice dishes.
- The test has to be taken on an empty stomach. 12 hours before the test and during the test period the patient is not allowed to eat. Sugar-containing drinks (including "light" drinks) are not allowed. After starting the test moderate amounts of mineral water or unsweetened tea are allowed.
- The breath gas test should preferably be carried out in the morning - 1-2 hours after getting up.
- Smoking should already be stopped 6 hours before starting the test. During testing you are not allowed to smoke (not even passively).
- Antibiotics or laxatives should be stopped at least 1 week before the test. The patient should not suffer from diarrhoea.
- The patient is not allowed to sleep directly before or during the test period.

It is recommendable to carry out tests within three months after receipt of the sampling material. The filled sample containers should be sent to the laboratory immediately. If the period of 3 months is exceeded, the vacuum in the test tubes may have decreased and lead to false-negative results.

Test Procedure:

Please check if the sampling material is complete. The following should be contained:

1 x mouthpiece with bag and sampling device attached at the side
5 x sample tubes, with labels numbered consecutively.
Attention: Test tubes are in vacuo; for this reason they should not be opened, as otherwise they become useless
1x container with 25 g fructose
1x test protocol

Take the numbered sample tubes out of the white outer tubes in the shipping box.

Label the tubes with your name and date of test and put them in the correct numerical sequence (no. 1-5).

In the shipping box there is also a sachet containg 25 g fructose. Dissolve the complete content in 240 ml warm water, stir until the powder is completely dissolved. (Please note: It is recommendable to prepare the test solution already day before taking the sample. The finished test solution can be kept in the fridge until use.)

ATTENTION
Doses for children weighing 25 kg or less:
For infants the fructose doses depend on bodyweight: 1 g fructose for 1 kg bodyweight. If the child weighs 25 kg or more it is given the adult dose. If the test is to be carried out for children below 24 kg, please call us for calculation of the optimum amount of test sugar.

II. Test Completion / Breath Gas Samples

Phase 1:Taking the reference sample (before drinking the test solution)

1. Take the mouthpiece with the breathing bag in one hand while holding the labelled sample tu beNo. 1 in the other hand.

2. Breathe in normally (do not breathe deeply), then blow the breath through the mouthpiece into the bag, so it fills slowly (Picture 1).

3. While breathing out - the bag still being filled with your breath - put the test tubes (with the side of the rubber stopper) with slight pressure on the sampling device at the side of the mouthpiece. A needle will penetrate the rubber stopper of the test tube and your breath flows into the vacuum tube (Picture 2). After completely breathing out you pull the test tube out of the sampling device and lay it out ready for shipment.

Phase 2: Drink the test liquid

4. After taking the reference sample (test tube no.1), please drink the test liquid.

5. Please write the time you drink the liquid on the test protocol (this corresponds with Test Time 0). Please do not smoke during the test period (not even passively), do not eat or sleep.

Phase 3: Taking Breath Gas Samples No. 2 – 5

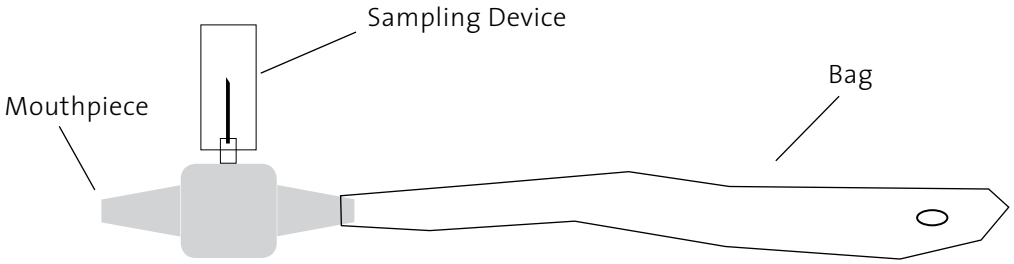
6. After 30, 60, 120 and 180 min you do the following breath gas samples – just like described under Point 1 to 3 (see above). Always write the time you take the respective breath gas sample on the test protocol. The complete test duration is 3 hours.

7. Put the filled breath gas tubes back into the shipping box; add the completed test protocol and the request form. Ship or send the box immediately. (The complete sampling utensils should also be returned, so we can dispose of them properly.)

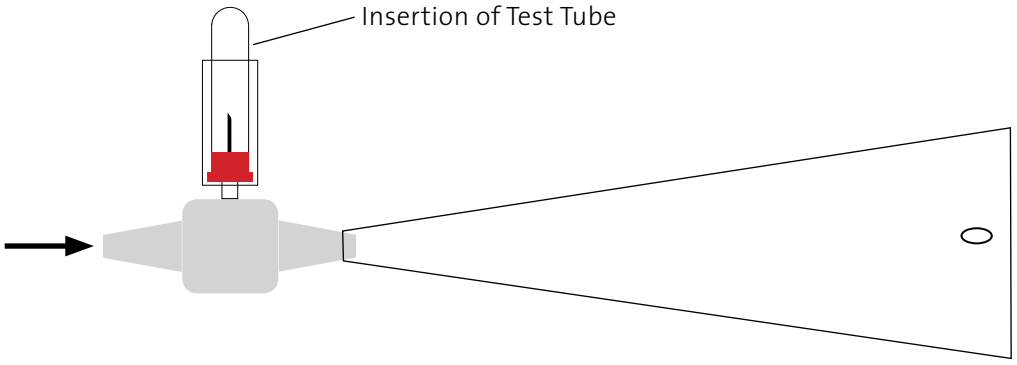
If you want to do various breath gas tests, there should be at least three days between the individual tests.

Sampling Device:

Picture I:



Picture II:



Take sample when breathing out. During sampling the bag has to be filled with breath gas. The contact of mouth and mouthpiece is not to be interrupted.

Please be careful when handling the sampling devices: Do not touch inside the sampling device because there is a pointed needle. You may injure yourself!