

# The C13 urea breath test

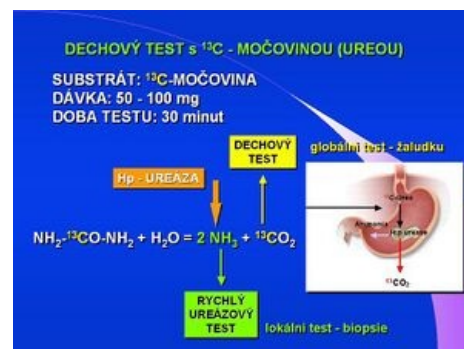
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**The C13 urea breath test** (<sup>13</sup>C-UBT) is now considered the standard for detection of infection caused by *Helicobacter pylori*. The principle of the test is based on the detection of labeled carbon dioxide, which is formed by the cleavage of the substrate - urea by an enzyme, urease, which is produced as a surface protein by the bacterium *Helicobacter pylori*. The test method was described as early as 1987 and there are a number of modifications that differ mainly in the amount of substrate administered (50-100 mg), the administration of citric acid solution or natural orange juice and the time interval for exhaled air sampling. One of the variants is the so-called European Standard Protocol, see below.

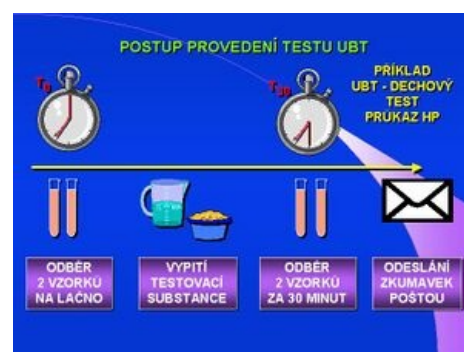
## Test Procedure

The patient must be fasted for the test (must not eat, drink or smoke for at least 2 hours). Two or three exhaled air samples are taken into a test tube. It is important to ensure that air is trapped from the final exhalation phase. This is followed by drinking 200 ml of citric acid solution or natural unsweetened orange juice and after 5 to 10 minutes exactly 30 minutes, two or three exhaled air samples are taken into the tubes in the same way as at the beginning of the test. Air samples in test tubes are analyzed by IRMS technique. The protocol variant for IR - POCT analyzers differs only in that the exhaled air samples are taken in aluminum foil bags and are analyzed immediately in the outpatient clinic or laboratory, the test result is known within 10 minutes.

For the evaluation of the test, the criterion of changing the ratio of <sup>13</sup>CO<sub>2</sub> : <sup>12</sup>CO<sub>2</sub> is determined to be greater than 5 per mille between the sample at time T<sub>30</sub> compared to the sample T<sub>0</sub>. The test result is affected by gastric motility and anatomy, impaired emptying, treatment with proton pump inhibitors, antibiotics or bismuth preparations. It is therefore recommended to perform a breath test 4-6 weeks after the end of eradication therapy. Recent studies have shown reliable evaluation of the test in children at a dose of 1 mg / kg body weight, max. 25 mg of labeled urea.



The C13 breath test



Test procedure

## Links

### Source

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*H. pylori* (*Helicobacter pylori*) Breath Test: What is It, How is it Done. *Cleveland Clinic: Every Life Deserves World Class Care* [online]. Copyright © 2022 Cleveland Clinic. All Rights Reserved. [cit. 28.03.2022]. Dostupné z: <https://my.clevelandclinic.org/health/diagnostics/5217-h-pylori-helicobacter-pylori-breath-test--urea-breath-test>

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