High Resolution Oesophageal Manometry and 24 hour pH/Impedance Monitoring

Information and advice for patients

GI Physiology

What is the test?

Your consultant has requested that you have tests that investigate the function of your stomach and oesophagus (food pipe). These tests can help find a cause for your symptoms.

We do understand that you may have concerns about having this type of test and we would like to reassure you that all tests are conducted in a quiet private room and the physiologist performing your test will ensure comfort is maintained at all times.

What is the oesophagus?

The oesophagus (food pipe) connects your throat to your stomach. At the top and bottom of the oesophagus are valves. When you swallow these valves should relax to allow food through. The muscles in your oesophagus also contract, pushing food down. Following swallowing these valves should close to prevent food and stomach acid flowing back into your oesophagus.

Any problems with the way the valves relax or the muscle action in the oesophagus can cause symptoms such as difficulty swallowing, heartburn, regurgitation and chest pain.

Oesophageal Function Tests can consist of different tests dependant on what your consultant has referred you for (this is listed on your appointment letter). These include:

- High Resolution Oesophageal Manomety
- 24 hour pH Impedance monitoring

What is High Resolution Oesophageal Manometry?

High Resolution Oesophageal manometry assesses how well the muscles of the oesophagus are working when you swallow. It also checks the relaxation of the valves at the top and bottom of the oesophagus.

The equipment used to assess these is called a manometry catheter. This is a tube about the thickness of a straw which has many pressure sensors down its length. These sensors measure the pressure of the oesophageal muscles when they contract. The results of this are displayed on a computer screen which allows the physiologist to see why you may be getting your symptoms.

You cannot be put to sleep or sedated during the procedure. The catheter is gently passed into your nose and you will drink water through a straw to help the tube pass into your stomach. Once the tube is in place it will be taped in place at your nose and you may feel a ‘lump’ sensation in your throat. This is not painful and any discomfort should settle quickly. You will be able to breath normally throughout the test.

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The procedure will then begin, and we will then give you small measured (5ml) sips of water to swallow. Following this dependent on your primary symptoms we may ask you to eat solid foods. For this we use marshmallow, however if you are unable to eat marshmallows or would prefer to bring your own food, please feel free to do so.

If you have any particular foods that you have difficulty swallowing, please bring them to the appointment and you will be asked to eat these to try and trigger your symptoms so we can obtain more personalised results.

What is 24 hour pH Impedance monitoring?

The test investigates the reflux (regurgitation) of stomach contents into the oesophagus (gullet). Reflux of acid into the gullet can cause various symptoms such as heartburn, cough, etc. This condition is called gastro-oesophageal reflux disease. The test works by taking acidity (or pH) measurements within the oesophagus. These are taken by using a very thin catheter with impedance (the electrical resistance) sensors and a pH electrode built into the catheter. This electrode is positioned 5cm above the lower valve of the oesophagus which is located at the entrance to the stomach. You will usually have this test at the same visit and immediately after high resolution oesophageal manometry. The catheter will be inserted in a similar manner to the manometry catheter and once in position it is secured with tape at your cheek and neck and then connected to a battery powered recorder which can be fastened around your waist or over your shoulder. You will be given instructions on how to work the recorder and how to fill in a diary which is used to record when you get your symptoms, when you eat and drink and when you go to bed.

The test is carried out over a 24 hour period and you will also receive an appointment to return the following day for removal of the pH Impedance catheter. The information collected will be uploaded onto a computer and the tube quickly and painlessly removed. You will be able to go back on any medication that may have been stopped for the tests.

What are the benefits?

The tests investigate the function of your stomach and oesophagus (food pipe). These tests can help find a cause for your symptoms.

What are the risks?

As with all procedures there are risks. In some people the test may cause dizziness or fainting. There is also a very small risk of bleeding or perforation of the oesophagus.

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Are there any alternatives to this test?

These tests are considered the gold standard tests. A barium examination may give some of the information which related to your condition, but these tests are not considered the best way of confirming that your symptoms relate to your oesophagus.

An alternative to pH Impedance monitoring is a wireless pH test. This test involves having a capsule attached to the lining of the oesophagus via endoscopy. This capsule wirelessly transmits data to a recorder about the acidity in your oesophagus.

Preparing for the test

- You should previously have had an endoscopy or barium swallow prior to the tests. If this is not the case, please contact the Department as we may have to postpone the tests until one of these have been performed.
- Certain medications can affect the tests therefore it is important that you follow the instructions listed in your appointment letter.
- For health and safety reasons your employer may not want you to work with the equipment in place – please confirm this with them prior to the tests.
- It is important that you do not eat or drink for 4 hours before your test.
- It is not necessary for you to be accompanied unless you have a condition which requires this. If friends or family do accompany you then they will be asked to stay in the waiting area whilst you undergo the tests.
- You will be asked to read and complete a consent form before having the tests. If you are happy and fully understand the information given to you, you may sign the form. However, should you have any further questions the person performing the test will be happy to discuss these with you.

Where do I go?

The department is located at Sandwell Hospital in Clinic 6B of the Outpatients building on the 1st floor. On your arrival please check in at the Endoscopy Unit Reception desk. You will be asked to take a seat in the Clinic 6B waiting area. The scientist doing the test will then take you into a private room and discuss the test with you.

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During the test

What should I expect?

- We will explain the tests in full and ask you to sign a consent form. This is important as we must seek your consent for any treatment or procedure beforehand. The scientist will explain the risks, benefits and alternatives before they ask for your consent. If you are unsure about any aspect of the tests proposed please ask for more information and the scientist will be happy to provide this.
- You will be asked to sit on a couch and the catheters will be inserted as previously stated.
- The tests usually take approximately 60 minutes from start to finish.

During the 24 hour recording period

It is important that you continue to carry out normal activities as much as possible during the recording period to see if they might be related to your symptoms. Please note you will not be able to have a bath or shower whilst the recording equipment is attached to you. You will be able to eat and drink as normal during the tests.

What happens if I vomit during the 24 hour pH test?

If you vomit during the 24 hour period, the catheter may move from its initial position which may feel uncomfortable. Coughing and sneezing do not usually cause the catheter to move, however the scientist will explain how to deal with any problems before you leave the department.

After the test

You will be given instructions on how to use the recorder and how to fill in the diary. We will give you an appointment to return the following day if appropriate.

You may go straight home following the tests.

Going home

Following the removal of the catheter you will be able to go home. You do not need to be accompanied and your ability to drive will not be affected. You will be able to go straight back to your normal routine. You may eat and drink as normal and restart any medication that was stopped for the tests.

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Follow-up

Following the tests your recordings will be analysed and the results passed onto the consultant who referred you for the tests. Once they have received these results you will be given an appointment and they will discuss and explain the results to you.

Contact details

If you have any questions about the tests please contact the **GI Physiology Department** on: 0121 507 2490

The department is open Monday – Wednesday and Friday 8.00am to 4.00pm.

Further information

- NHS (2020) Heartburn and acid reflux. Available at: *https://www.nhs.uk/conditions/heartburn-and-acid-reflux/ (Accessed: 24 January 2023).*
- Guts UK (No date) Heartburn and gastro-oesophageal reflux. Available at: *https://gutscharity.org.uk/advice-and-information/symptoms/heartburn-and-reflux/ (Accessed: 24 January 2023)*.

For more information about our hospitals and services please see our website *www.swbh.nhs.uk*, follow us on Twitter *@SWBHnhs* and like us on Facebook *www.facebook.com/SWBHnhs*.

Sources used for the information in this leaflet

Trudgill, N.J., Sifrim, D., Sweis, R., (2019). British Society of Gastroenterology guidelines for oesophageal manometry and oesophageal reflux monitoring. *Gut*, 68(10), pp.1731-1750.

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