TEST

Esophageal manometry

Esophageal manometry measures how well the muscles and valves of your esophagus move food toward your stomach.

WHAT IT MEASURES
Pressure and coordination in the esophagus and its valves

SAMPLE
None; a thin pressure-sensing catheter is used

FASTING NEEDED?
Yes, usually for at least six hours

HOW LONG IT TAKES
About 30 to 60 minutes

RESULTS IN
Same day to several days; varies by laboratory

USED FOR
Diagnosing swallowing and esophageal movement disorders

MAIN LIMITATION
Abnormal pressure patterns may not explain symptoms

Overview

Esophageal manometry measures muscle pressure and movement in the esophagus, the tube that carries food and liquids from your throat to your stomach.

During swallowing, coordinated contractions push food downward while ring-shaped muscles called sphincters open and close. Manometry checks whether these muscles contract, relax, and work together normally.

Most centers use high-resolution manometry , which records pressure at many points. A thin, flexible catheter is passed through your nose into your stomach. The test uses no radiation and usually requires no sedation.

Manometry assesses function rather than structure. It cannot directly show narrowing, inflammation, ulcers, or tumors.

Why the test is ordered

Esophageal manometry is mainly used to investigate swallowing or movement problems, sometimes after tests such as an upper endoscopy.

Reasons for testing include:

Achalasia occurs when the lower esophageal sphincter does not relax normally and the esophagus struggles to move food downward.

Manometry is not usually used alone to diagnose acid reflux. Ambulatory pH or pH-impedance monitoring better measures how often stomach contents enter the esophagus.

- Difficulty swallowing food or liquids
- Food seeming to stick in the chest
- Unexplained regurgitation
- Chest pain after urgent heart and other causes have been assessed
- Suspected achalasia or another movement disorder
- Planning certain reflux or hiatal hernia operations
- Locating a sphincter before some reflux-monitoring tests

Who should have the test

You may be offered manometry if symptoms suggest that your esophageal muscles or sphincters are not working normally. It is not a routine screening test for people without symptoms.

An endoscopy or barium swallow may be done first to identify structural causes of swallowing difficulty, such as narrowing or inflammation.

Tell the center if you have had esophageal or stomach surgery, significant nasal problems, or difficulty following swallowing instructions. Also mention pregnancy or possible pregnancy. Although manometry uses no radiation, pregnancy may affect preparation, positioning, and interpretation.

How to prepare

Follow your center's instructions. You will usually need to stop eating and drinking for at least six hours, although some centers allow small sips of water until closer to the test.

Ask how to manage your regular medicines. Opioids and medicines affecting muscle movement or pressure may change the findings. Acid-reducing medicines like omeprazole or

lansoprazole often can continue for manometry, but instructions may differ if reflux monitoring is also planned.

Do not stop prescribed medicine unless the testing team tells you to. Bring an up-to-date medicine list and report allergies, especially reactions to local anesthetic.

Wear comfortable clothing. Because sedation is generally not used, most people can travel home normally afterward.

What happens during the test

You will usually sit upright while a clinician applies numbing gel or spray inside one nostril. This reduces discomfort but may not remove every sensation.

A thin catheter is guided through your nose, down your throat, and into your stomach. You will swallow as it passes. Brief gagging, watery eyes, or pressure in the nose and throat can occur.

The catheter is taped in place, and you take a series of small swallows, usually of water, while pressure is recorded. You may also be asked to swallow repeatedly, drink a larger amount, or eat a small test food.

Avoid talking or swallowing between instructions because extra swallows can disrupt the recording. The catheter is removed after the measurements are complete.

Understanding your results

The report describes the strength, timing, and coordination of contractions and whether the lower esophageal sphincter relaxes enough during swallowing. High-resolution results often appear as a colored pressure map, interpreted as an overall pattern rather than one number.

Results may show:

These findings may identify patterns linked to achalasia, esophageal spasm, absent contractions, or ineffective movement. However, an abnormal pattern does not always explain symptoms. Results are considered with your history, endoscopy, imaging, and other tests.

Reference ranges depend on the equipment, protocol, body position, laboratory, medicines, and clinical context.

- Normal movement and sphincter relaxation
- Weak, failed, or unusually strong contractions
- Early or poorly coordinated contractions

- Incomplete relaxation where the esophagus meets the stomach
- An inconclusive pattern requiring another test

What affects the results

Manometry is sensitive to how the test is performed. Important influences include:

Tell the team if you could not follow an instruction or experienced symptoms during a particular swallow.

- Catheter position: A catheter that curls or does not enter the stomach can produce misleading readings.
- Movement and extra swallowing: Talking, coughing, repeated swallowing, or abdominal tensing can disrupt the recording.
- Eating or drinking beforehand: Remaining material may affect safety and test quality.
- Medicines: Opioids like oxycodone or morphine may cause patterns resembling obstruction or spasm. Muscle relaxants, nitrates, calcium-channel blockers, anticholinergics, and sedatives may also affect movement.
- Recent sedation: Sedation may temporarily alter swallowing measurements.
- Body position: Results can differ between sitting and lying down.
- Previous surgery: Reflux, bariatric, or other surgery can change anatomy and pressure patterns.
- Age and pregnancy: Both may affect esophageal movement or sphincter pressure.

Accuracy and limitations

High-resolution manometry is the main test for confirming major esophageal movement disorders and distinguishing patterns of achalasia.

It may miss an intermittent problem that does not occur during the short recording. Movement, repeated swallowing, catheter position, medicines, or borderline measurements can also produce abnormal-looking results without a persistent disorder.

A normal result does not rule out every cause of swallowing difficulty or chest discomfort. Manometry cannot reliably detect inflammation, scarring, rings, tumors, or other structural changes; endoscopy or a barium swallow is better for these problems.

It also cannot establish whether acid reflux causes symptoms. pH or pH-impedance monitoring

is usually more informative. If manometry is inconclusive, a timed barium esophagram or an endoscopic pressure test called EndoFLIP may help.

Risks and complications

Temporary gagging, watery eyes, nasal discomfort, a minor nosebleed, sore throat, nausea, or light-headedness may occur. These effects usually settle after catheter removal.

Serious complications are uncommon. Tell the team immediately if you develop severe pain, trouble breathing, or ongoing bleeding during the procedure.

What happens next

You can usually eat, drink, and resume normal activities after throat numbness has worn off, unless instructed otherwise. Waiting for normal sensation reduces the chance of coughing or choking.

A clinician will review the pressure pattern alongside your symptoms and previous results. Follow-up may involve treatment, reflux monitoring, imaging, or endoscopy if the cause remains unclear.

Seek urgent medical care if food becomes completely stuck, you cannot swallow your saliva, or swallowing difficulty occurs with breathing trouble. New or severe chest pain-especially with sweating, shortness of breath, faintness, or pain spreading to the arm, back, neck, or jaw-requires emergency assessment rather than waiting for manometry results.

Common questions

Can I drink coffee before esophageal manometry?

Usually not during the fasting period. Coffee can stimulate swallowing and stomach activity, and coffee with milk is not a clear liquid. Follow your center's instructions.

Can I take my medicines that morning?

Some can be taken with a small sip of water; others may need to be delayed. Ask in advance, especially about opioids and medicines affecting muscle movement. Do not stop prescribed treatment on your own.

Does the time of day matter?

Fasting correctly and following medicine instructions matter more than the appointment time.

Morning testing may make fasting easier.

Can I exercise beforehand?

Ordinary activity is unlikely to affect results. Avoid exercise immediately beforehand if it causes nausea or reflux, or makes you drink during the fasting period.

Will the test hurt?

It is usually uncomfortable rather than painful. Passing the catheter may cause pressure, gagging, or watery eyes, which often improve once it is positioned.

Can I be sedated?

Sedation is generally avoided because it may affect swallowing and pressure measurements. In selected cases, endoscopic assistance may be used, but sedation must be considered when interpreting results.

Sources

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