PROCEDURE

# Biopsy

A biopsy removes cells or tissue so they can be examined for disease.

**PURPOSE**
Remove cells or tissue for laboratory diagnosis

**PROCEDURE TYPE**
Diagnostic; needle, endoscopic, bedside, or surgical sampling

**WHERE IT IS DONE**
Clinic, imaging suite, endoscopy suite, bedside, or operating theatre

**ANAESTHESIA**
None, local anaesthetic, sedation, or general anaesthesia

**HOW LONG IT TAKES**
Usually 10-60 minutes; surgical biopsies may take longer

**PREPARATION**
May require fasting, medication changes, or bowel preparation

**RECOVERY**
Usually same day; no driving after sedation or general anaesthesia

**MAIN RISKS**
Bleeding, infection, pain, and nearby tissue injury

**RESULTS**
Pathology usually takes several days; special tests may take longer

## Overview

A biopsy is a procedure that removes a small sample of cells or tissue from your body. A specialist called a pathologist examines the sample under a microscope and may perform laboratory tests on it.

Biopsies can be taken from almost any part of the body. The method depends on where the abnormal area is, how large it is, and what information your healthcare team needs.

Common methods include:

A biopsy does not always mean cancer is suspected. Samples are also used to identify inflammation, infection, organ damage, and other conditions.

- Fine-needle aspiration: A thin needle removes cells or fluid

- Core needle biopsy: A wider needle removes small cylinders of tissue
- Skin biopsy: A blade or circular tool removes part of a skin lesion
- Endoscopic biopsy: Instruments passed through a flexible camera tube collect tissue
- Bone marrow biopsy: A needle removes marrow, usually from the back of the hip
- Surgical biopsy: An operation removes part or all of an abnormal area

## Why the procedure is performed

Your healthcare team may recommend a biopsy when an examination, scan, blood test, or screening test shows an area that needs a clearer diagnosis.

A biopsy may help to:

Imaging tests can show the size and location of an abnormal area, but they often cannot show exactly what its cells are. A biopsy can provide that information.

- Tell whether a growth is cancerous or non-cancerous
- Identify the type and features of a cancer
- Diagnose inflammation, infection, or organ disease
- Check whether a transplanted organ is being rejected
- Select treatments based on genes or proteins in abnormal cells
- Assess how well treatment is working

## Who should and should not have it

A biopsy may be appropriate if the result could confirm a diagnosis, guide treatment, or prevent unnecessary treatment. Your healthcare team should explain why the sample is needed, what type of biopsy is proposed, and how the result may affect your care.

It may not be the right next step if a safer test can answer the same question, if the result would not change your care, or if the abnormal area cannot be reached safely.

A biopsy may need to be delayed or planned differently if you have:

These issues do not always rule out a biopsy. Your team may change the technique, treat an infection, adjust medicines, or arrange monitoring. Do not stop a blood thinner like warfarin or apixaban on your own.

- A blood-clotting disorder or low platelet count
- An infection near the planned biopsy site
- A serious illness that makes sedation or surgery unsafe at that time
- Medicines that increase bleeding risk
- An allergy to a proposed anaesthetic or contrast material
- A possible pregnancy when imaging such as X-rays or CT may be used

## How to prepare

Follow the treating facility's instructions, because its own instructions take priority over general information.

Ask whether you need to stop eating or drinking. Fasting is more likely if you will receive sedation or general anaesthesia, or if the biopsy is performed during an endoscopy.

Give the team a complete list of prescription medicines, over-the-counter products, vitamins, and supplements. Tell them if you take a blood thinner, aspirin, or medicine that affects platelets. The team will tell you whether any change is needed and when to restart it.

Also tell them about allergies, previous reactions to anaesthesia or contrast material, bleeding problems, implanted medical devices, and any possibility of pregnancy.

Some bowel biopsies require bowel preparation. This involves drinking a laxative solution to empty the bowel. For a sedated procedure, arrange for a responsible adult to take you home and follow any facility rules about supervision afterward.

## What happens during the procedure

Before the biopsy, the team confirms your identity, the biopsy site, and the planned procedure. You may be asked to sign a consent form after discussing the benefits, risks, and alternatives.

The skin may be cleaned and numbed with local anaesthetic. The numbing injection can sting briefly. Depending on the biopsy, you may also receive sedation to make you relaxed and sleepy, or general anaesthesia so you are unconscious.

For a needle biopsy, the clinician may use ultrasound, CT, mammography, or another imaging method to guide the needle. You may feel pressure, pushing, or a brief sharp sensation while samples are collected.

During an endoscopic biopsy, a flexible camera tube is passed through a natural opening, such

as the mouth or rectum. Small instruments collect tissue from the area being examined.

A surgical biopsy is done through an incision. An incisional biopsy removes part of an abnormal area. An excisional biopsy removes the whole area, often with a small border of nearby tissue.

Afterward, pressure, a dressing, adhesive strips, or stitches may be used to close the site. The sample is labelled and sent to a pathology laboratory.

## Recovery and what to expect afterward

Mild pain, tenderness, bruising, or swelling can occur around the biopsy site. Your team will explain which pain relief is suitable and how to care for the dressing or wound. Some procedures cause site-specific discomfort, such as a sore throat after an upper endoscopy.

You can often eat normally after a biopsy done with local anaesthetic. After sedation, general anaesthesia, or a digestive-tract procedure, you may need to wait until you are fully awake or follow temporary food restrictions.

Keep activity light for the period stated in your discharge instructions. A deeper needle or surgical biopsy may require avoiding heavy lifting, vigorous exercise, swimming, or soaking the wound for several days.

Do not drive, operate machinery, drink alcohol, or make important decisions for the period specified after sedation or general anaesthesia. You will usually need someone else to take you home.

Many people return to desk work the next day after a minor biopsy. A surgical biopsy or physically demanding job may require more time away.

## Risks and possible complications

The risks depend on the biopsy location, sample size, and technique. Possible complications include:

Most bleeding is minor and settles with pressure. Your team can explain risks that are specific to the organ being sampled.

- Bleeding or a collection of blood under the skin
- Infection at the biopsy site
- Ongoing pain or swelling
- Scarring

- Injury to a nearby organ, blood vessel, or nerve
- Air around a lung after some chest biopsies
- A reaction to anaesthesia, sedation, or contrast material
- An inadequate sample that requires another procedure

## Results and follow up

A pathologist prepares and examines the sample. Some tissue needs to be preserved, cut into thin sections, and stained before it can be assessed. Tests for infections, genes, proteins, or other cell features can take longer.

A result may be ready within several days, but complex samples can take longer. Ask when and how you will receive the report and who will discuss it with you.

Results may show normal tissue, a non-cancerous change, inflammation, infection, precancerous cells, or cancer. Sometimes the result is uncertain or the sample does not contain enough useful tissue. In that situation, repeat sampling, additional testing, imaging, or surgery may be offered.

Routine follow-up may include reviewing the result, checking wound healing, removing stitches, or discussing next steps.

## Alternatives

The realistic alternatives depend on what your healthcare team is trying to find out.

Imaging such as ultrasound, CT, MRI, or mammography is non-invasive and can monitor an abnormal area. However, a scan usually cannot identify cell type as reliably as tissue examination.

Blood, urine, sputum, cervical-cell, or stool tests are easier to collect. They may detect signs of disease but can miss small or localised abnormalities and may not provide enough information to select treatment.

Watching an area with repeat examinations or scans avoids an immediate procedure. The trade-off is delayed certainty and the possibility that a significant change could grow before it is diagnosed.

Removing the whole abnormal area may provide both diagnosis and treatment. It is usually a larger procedure than taking a small sample and may involve more pain, scarring, anaesthesia,

and recovery time.

Liquid biopsy blood tests can detect tumour-related material in selected cancer settings. They do not replace a tissue biopsy in many situations because they may not identify where abnormal material came from or provide enough tissue information.

## When to call your healthcare team

For routine questions, contact your healthcare team if pain is not improving, bruising is spreading, the wound edges separate, or you are unsure about dressings, medicines, work, or results.

Seek prompt medical advice for fever, increasing redness or warmth, pus, worsening swelling, or bleeding that continues despite firm pressure.

Get urgent or emergency help for:

Your discharge instructions may list additional warning signs specific to the biopsy site.

- Heavy or rapidly increasing bleeding
- Trouble breathing, chest pain, or coughing up more than a small amount of blood
- Fainting, severe weakness, confusion, or difficulty waking
- Severe or rapidly worsening pain
- Vomiting blood or passing black or heavily bloody stool
- Signs of a serious allergic reaction, such as facial swelling or breathing difficulty

## Common questions

Will I be asleep?

Many needle and skin biopsies use local anaesthetic, so you are awake but the area is numb. Endoscopic and surgical biopsies may use sedation or general anaesthesia. Ask which is planned for you.

Can I drive home?

You may be able to drive after a minor biopsy using local anaesthetic alone, if the facility agrees and the biopsy site does not affect safe driving. You must not drive yourself home after sedation or general anaesthesia.

How painful is a biopsy?

You may feel a sting from the numbing injection, followed by pressure or brief discomfort. Mild soreness afterward is common. Pain should generally improve rather than worsen.

When will I know the result?

Pathology commonly takes several days. Special stains, molecular tests, or an expert second review may add time. Your team should tell you when to expect contact.

Can a biopsy spread cancer?

For standard biopsy techniques, the benefit of obtaining an accurate diagnosis generally outweighs the very small risk of cells being displaced along the biopsy path. Clinicians choose the biopsy route carefully when this issue is relevant.

What if the biopsy does not give an answer?

The sample may be too small or may not contain the target tissue. Your team may recommend another biopsy, a different technique, further imaging, or follow-up over time.

## Sources

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- American Cancer Society. Biopsy and Cytology Tests