What is a Synovial Biopsy?

Your initial and last visits of the BioTest study include a synovial biopsy. This leaflet will help you understand what a synovial biopsy is, why it's done, how it works, and the possible risks, so you feel comfortable and prepared.

⌘ 1. What is a Synovial (Joint) Biopsy?

A synovial (joint) biopsy is a medical procedure involving the **collection of small tissue samples** (about the size of a pinhead) from the lining of one of **your** joints. This lining, the so-called synovial tissue) is a thin layer covering the internal part of the joints that can become thick when your joint is inflamed, causing swelling and pain.

We use a technique called **ultrasound-guided needle biopsy**. This means we use an ultrasound machine, which creates images with sound waves (like the scans done during pregnancy), to help us guide a very thin needle into the joint to find the exact spot. This procedure is very safe, and our doctors are experts at performing it, so you will be comfortable

You can find more details about this technique in Section 3.

⌘ 2. Why Undergo a Synovial Biopsy?

For Diagnosis	In some cases, a synovial biopsy can help us find out what's causing your joint symptoms, which can help diagnose joint infections or rare joint diseases
For Research	A synovial biopsy can contribute to research aimed at finding better treatments for joint disorders. You can learn more about this in the study's specific Patient Information Sheet or by asking your doctors and nurses for more information.

⌘ 3. How the Biopsy Works

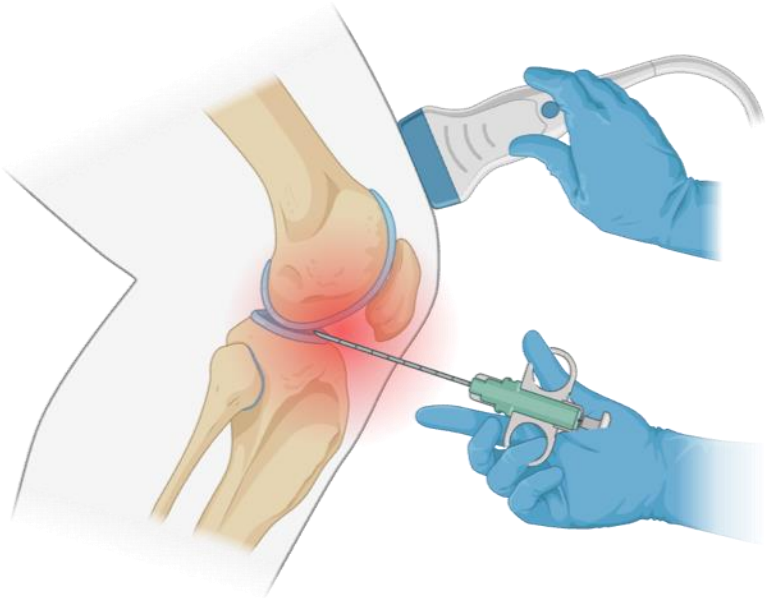
Step by Step: Ultrasound-Guided Needle Biopsy

The biopsy involves:

- using ultrasound to **find the exact spot in your joint**. Ultrasound uses sound waves instead of radiation (like during pregnancy scans) create images.
- **numbing the area with local anaesthesia**: a thin needle is used to inject the anaesthetic, which will make the area feel numb, so you won't feel pain.
- **inserting a thin, clean needle** to collect tiny tissue samples from the joint lining
- applying **a small bandage or cotton swab on the joint, which you can take off after 24 hours**.

Stiches are not necessary, as the biopsy needle is very thin. You should avoid direct contact with water on the biopsy site for 24 hours. You can use your joint as usual for everyday activities, but it is best to avoid heavy lifting (e.g. carrying heavy shopping bags) or exercises/sports for 24 hours. Driving is normally OK, however, in some cases, the biopsied joint can feel numb for longer, which could interfere with driving. Your doctor or nurse can confirm what's best for you.

Your doctor and nurse will be with you every step of the way to explain the process, answer your questions, and ensure you are comfortable



4. Preparation for Synovial Biopsy

Mental & Physical Preparation

It's normal to feel a bit nervous, but there are several ways to help you overcome this:

- Talk to your nurse or doctor about any worries you have. They can answer your questions and help you feel more comfortable
- Let your doctor know about all the medications you take. Some medications might need to be stopped for a short time before the biopsy
- Tell your doctor if you have any bleeding problems or allergies
- You can normally have a light meal (e.g. breakfast or light lunch) and drink before the biopsy. Water, coffee, and tea are OK, but please avoid alcohol. Double-check with your doctor/nurse if you also need to have blood tests, as some of these might require fasting.

Practical things

- **Arrange transportation** to and from the hospital; even though you can use your joints after the biopsy for everyday activities, we suggest avoiding driving yourself, as the joint might feel numb for longer; talk to your doctor/nurse if in doubt, they might be able to help with transportation
- Make sure you have **enough time** for the procedure, as biopsy appointments are generally longer than regular study visits. The biopsy itself takes about 30 minutes to 1 hour, in addition to the usual study activities. Discuss with your doctor or nurse to know how long your appointment will be and ask them if you **need a note for work**
- Talk to your nurse or doctor about **how to manage any pain/discomfort you might have after the biopsy (though the majority of patients reported NO additional pain after the biopsy)**
- Even though you can use your joints after the biopsy (for example, you can walk out if you have a biopsy of the knees and you can use your mobile phone if you had a hand joint biopsy), we suggest avoiding heavy lifting or exercises/sports for one day after the procedures. You can restart your usual activities afterwards.

5. Understanding the Possible Risks

Like any medical procedure, there are some small risks with a synovial biopsy. A large study of 402 biopsies found that procedure was safe and well-tolerated. The main side effects were pain, swelling, and stiffness, reported by a small number of people (8 out of 402). Importantly, there were no instances of infections or any other serious side effects. The study also found that patients were generally willing to have another biopsy.
(Just SA, et al *RMD Open* 2018;**4:**e000799. doi: 10.1136/rmdopen-2018-000799)

Here are some possible risks:

- **Discomfort or pain:** You might feel some discomfort during or after the biopsy. We will numb the area and can give you pain medicine to help. In the study mentioned above, most patients reported no change in pain before and after the procedure. Your doctor/nurse will be able to give you specific advice on the use of painkillers if needed.
- **Infection:** While there's a theoretical risk of infection whenever a needle enters a joint, for a synovial biopsy, we take many extra steps and use sterile equipment to keep everything extremely clean, which means this risk of infection is significantly reduced. We still need to mention it as a possible, though very rare, risk.
- **Bleeding or bruising:** There might be some bleeding where the needle goes in. This is quite normal, especially if the join is inflamed, but it will stop quickly as the doctor applies a little pressure at the end of the procedure, just like after a routine blood test. You might also have minor bruising around the joint, which usually goes away within one to two days.
- **Tract persistence:** The biopsy needle will leave a tiny mark on your skin, which usually heals within a day or two; in some cases, this can take a bit longer, however, as no stitches are used, it will not require any special care
- **Flare of the underlying disease:** in theory, taking samples from the joints could cause your arthritis to flare up. However, this is a theoretical risk that has not been observed, and we haven't seen any disease flares in the study mentioned above, where most of the patients reported no change in symptoms, including pain, after the procedure. Importantly, most people who have a biopsy are already being treated with medications that help control their arthritis, and many will start a new treatment soon, which makes it even less likely that the biopsy could cause a flare-up.
- **Damage to local structures:** You might feel some temporary tingling or numbness in the area after the biopsy. This is usually due to the anaesthetic and generally goes away within 30 minutes to an hour after the procedure. In some cases, it might last a bit longer, similar to the numbness you might feel in the mouth after having a dental procedure. The ultrasound helps us avoid any damage to nearby structures, and we haven't had any cases of lasting problems.

Your doctor will discuss all potential risks with you before asking for your consent and will be available to answer any questions you may have.

6. Q&A

- **Is the synovial biopsy a common procedure?**
  - The synovial biopsy is not part of routine care for arthritis just yet. However, it has been performed for many years in many centres across Europe for diagnostic and research purposes, and thousands of patients have safely undergone the procedure.
- **Why do I need a synovial biopsy?**
  - It can help us figure out what's causing your joint problems and also helps with research
- **How is the biopsy performed?**
  - We use ultrasound to guide a thin needle into your joint, numb the area with local anaesthesia, and take a few tiny samples from the join lining
- **Can any Joint be biopsied?**
  - Almost any joint can be biopsied, including the small joints of the hands (e.g. the knuckle joints). However, smaller joints (e.g. the smaller joints in the fingers) can be challenging due to not having enough space or joint tissue. Your doctor will normally select for biopsy the most inflamed joint (one of the most swollen), using the ultrasound to confirm there is enough thickening. This will be explained and discussed with you. If multiple joints are suitable, you could decide to prioritise the non-dominant hand for the biopsy, should you prefer so.
- **What happens afterward?**
  - The clinical team will give you instructions on how to care for the biopsy site and to avoid heavy lifting/exercise for a short period of time (one day).
- **What are the risks?**
  - There are some small potential risks, like discomfort, infection, or bleeding. But these are rare, and we take steps to minimize them
- **How long does the procedure take?**
  - The procedure normally last between 30min and 1h, although most of this time is required for preparation and cleaning, the actual sampling takes between 10 and 30min.
- **Will it hurt?**
  - We numb the area first, so you should feel very little during the procedure. In some cases, the join can feel uncomfortable for one or two days, your doctor can advise you on the use of painkillers if needed.
- **Can I talk to someone about my concerns?**
  - Absolutely! We want you to feel comfortable and informed. Please talk to your doctor or nurse about any concerns you have. We would also advise you to take a look at the video describing a direct patient experience on the next page.
- **How does my participation contribute to medical research?**
  - Your participation helps us learn more about joint disorders and improve treatments.

If you have additional questions or concerns not addressed here, please feel free to reach out to our healthcare professionals. Your well-being and understanding of the procedure are our top priorities. Thank you for considering this important contribution to medical research and your health.

Hearing about a patient's experience can help you understand what a synovial biopsy involves. This patient interview provides a first-hand account of the synovial biopsy experience!

https://www.youtube.com/watch?v=L2Y4O58uFMQ