

Drug treatments for Adults with X-Linked Hypophosphataemia: Burosumab (Crysvita®)

Burosumab is a new injectable drug treatment for children and adults with X-linked hypophosphatemia (XLH). It works to help the body keep the phosphate levels that it needs. This can help to prevent fractures, bone pain, fatigue, strengthen your bones, and may increase your mobility.

Who is this fact sheet for?

This information may be helpful if you (or someone close to you):

- have been diagnosed with X-linked hypophosphataemia (XLH) by a healthcare professional.
- have been advised to consider taking burosumab to help manage or prevent symptoms.

It includes the following information:

- What is XLH?
- What is burosumab?
- How does burosumab work?
- Who can have burosumab?
- How do you take burosumab?
- Getting the most out of your treatment.
- Getting more information and support.

What is XLH?

X-linked hypophosphataemia (XLH) is a rare genetic disorder that leads to low phosphate levels in the blood, which are crucial for healthy bones and teeth. XLH symptoms often show in early childhood, causing symptoms such as bowed legs, short stature, and delayed walking. As individuals with XLH age, they may experience bone pain, fractures, muscle weakness, and dental issues. The condition can vary widely, even among members of the same family. Early recognition and management are important to reduce the impact of these symptoms on daily life as they tend to get worse with age.

What is burosumab?

Burosumab (brand name Crysvita®) is a medication used in managing XLH and has been designed to treat low phosphate levels in the blood, which helps to improve bone health. It works by addressing the root cause of the phosphate imbalance, supporting normal bone development, and reducing symptoms like bone pain and muscle weakness.

How does burosumab work?

Burosumab is a targeted therapy designed to treat conditions caused by low phosphate levels in the blood. It works by blocking the activity of a protein called fibroblast growth factor 23 (FGF23). In normal conditions, FGF23 regulates phosphate levels by reducing the amount of phosphate taken back into the blood by the kidneys, leading to more phosphate in the urine.

However, in XLH, there is too much FGF23, leading to even more phosphate in the urine. This causes low phosphate levels in the blood, which can result in weak bones, bone pain, and other problems.

By blocking FGF23, burosumab increases the body's ability to hold onto phosphate and bring the phosphate levels in the blood to normal. This promotes healthier bones and can alleviate problems such as bone pain, bone fractures, stiffness, muscle weakness, and mobility issues. Burosumab's ability to target the main way XLH causes problems makes it an effective treatment for improving bone health and quality of life in affected individuals.

Who can have burosumab?

Burosumab is recommended for individuals who have a genetic diagnosis of XLH who are over the age of 1.

Where is burosumab available?

Burosumab is a new treatment and will be available on the NHS from November 2024.

In **England** and **Wales**, burosumab was approved for use on the NHS in August 2024, this means it should be available and prescribed in a Highly Specialised setting.

In **Scotland**, burosumab has been available since March 2023 under the ultra-orphan pathway while further evidence on its effectiveness is generated. After 3 years the pharmaceutical company will provide an updated submission for reassessment to allow a decision on its routine use in NHS Scotland.

In **Northern Ireland**, the Department of Health has endorsed the guidance used in England and Wales. This means you should be able to get burosumab if your doctor thinks it is suitable for you.

It's worth bearing in mind that GPs won't be

able to prescribe burosumab, so you will need to see a specialist at a hospital. A specialist in metabolic bone may be a rheumatologist, endocrinologist or nephrologist.

When is burosumab not recommended?

Burosumab is not recommended:

- When you are also taking oral phosphate supplements and/or a specific form of vitamin D supplement (e.g. calcitriol, calciferol). You need to stop this before starting burosumab and your specialist centre will advise you when you need to do this, usually at least 7 days before starting.
- If you are pregnant or think you may be pregnant. There is not enough experience to know if burosumab may harm your unborn baby. We recognise it can take a long time to become pregnant so the specialists in the NHS are recommending burosumab can be continued up to when pregnancy is confirmed.
- If you are breastfeeding. There is not enough experience to know if burosumab passes into your breast milk.
- If you have certain kidney problems - your specialist centre will advise you about this.

How do you take burosumab?

Please watch this video that explains how to take burosumab: <https://www.myinject.eu/>. And consider installing the 'Upwards with a Smile' app as this has lots of information about burosumab, frequently asked questions with reminders for when injections are due, injection site rotation and setting reminders for other things, like blood tests, appointments and scans.

Burosumab involves giving yourself two injections just under the skin, once every 4 weeks in adults.

Burosumab comes in 10mg, 20mg and 30mg vials, and you may be prescribed a combination of different vials to make up your dose.

You'll be given clear instructions and shown how to give yourself the injections by homecare nurses who can come to your house. The homecare nurses generally visit 3 times to help you, or a member of your family, with the injections.

If you can't do them yourself, a family member or carer can do them for you. You should do your two injections together every four weeks - one straight after the other. They can be given over/on/in the stomach area, upper thigh or buttocks. If possible, don't give both injections in the exact same place. You can also have the injections in the outer area of your upper arm, but only if someone else does this for you.

For more information, please see the video (<https://www.myinject.eu/>) and the Patient Information Leaflet (available on XLH UK's web page on 'Adults starting burosumab').

Getting the most out of your treatment

Be informed

Find out about your drug treatment so you can be involved in decisions and know what to expect. There is trusted information on the <https://xlhuk.org/> website. It's important to gather as much information as possible before making a decision in conjunction with your specialist team. Make sure you read the Patient Information Leaflet that comes with your treatment, it is also on the xlhuk.org website. This explains in more detail how to use burosumab and the possible side effects. If you have any questions or concerns before or during your treatment, talk to your specialist team, they are there to help.

Receiving & storing burosumab correctly

Burosumab requires that it be transported by a company who are specialists in transporting temperature-controlled medicines. This company will deliver the medicine to your home on behalf of the hospital at a time that is convenient to you. The person prescribed burosumab must be there to accept delivery.

Upon accepting the delivery, your burosumab must be refrigerated between 2 and 8 degrees (DO NOT FREEZE). Without proper refrigeration, your medication may not be as effective, and your treatment schedule may be interrupted. You need to take out the burosumab 20-minutes before administering. It must be at room temperature for injection.

Understand the drug's benefits and the possible side effects

You may be worried about the possible side effects and long-term risks of taking a drug treatment.

It is important to take the time to consider all the benefits and risks of taking burosumab before starting treatment so that you feel informed and confident about starting.

During clinical trials of burosumab, the majority of people reported minimal side effects and any long-term health problems associated with the treatment were less than the risk of fractures, bone pain and stiffness of major joints without treatment.

Some people worry that if they get side effects after an injection, they won't be able to do anything about it. This is an understandable concern. But remember that burosumab will wear off quite quickly with the peak effect after 2 weeks and the need to re-dose at 4 weeks. It is ok to stop burosumab in discussion with your specialist centre if you find you cannot continue the treatment. The complications from burosumab will wear off once the drug is cleared from the body. Also, studies have shown any benefits will wear off but you will not be worse off than before you started.

Only some of the problems you see listed on the Patient Information Leaflet will be caused by the drug. In clinical trials, many of the listed problems were just as common in people taking a 'placebo' (dummy drug) as in people taking burosumab.

The problems listed below are thought to be the main 'true' side effects of burosumab. This list may change over time, as more research is carried out and we learn more about the treatment.

Side effect	How common is it?	What can I do about it?
Worsening bone or back pain	Although in the long term, burosumab has been shown to reduce pain, for a reason we do not understand, some patients get worse pain for days, weeks or months when they start treatment. This can be mild, moderate or severe.	Let your specialist centre know. Take a simple pain-relieving medication, such as paracetamol. If the pain continues to be moderate or severe, talk to your specialist centre who may advise more tests and a temporary reduction in the amount of burosumab you receive.
Restless legs	This is more common but not usually severe.	Usually this settles or is tolerated without changing the dose of burosumab.
Injection site reaction	These are unusual.	Rotate the site of the injection for next time. Let your specialist centre know if it does not settle in 48 hours.

If you experience any problems that you think may be due to burosumab, contact your specialist centre as they will be able to help. If you're taking any other medications, it is possible that these other drugs may be causing side effects. Your prescribing doctor may suggest ways to investigate this further. You can also talk to your doctor about other possible treatment options.

Common Questions

My doctor has asked me to start vitamin D supplements but I thought I was supposed to stop vitamin D before starting burosumab?

It is important you stop vitamin D supplements like alfacalcidol and calcitriol at least 7 days before starting burosumab. These are types of 'activated vitamin D'. Sometimes, adults with XLH become deficient in vitamin D and this is treated by using a different type of vitamin D called parent vitamin D or colecalciferol. Taking parent vitamin D or colecalciferol is safe with burosumab.

I missed my dose, what should I do?

If you are within 3 days of your scheduled dose, it is ok take the burosumab and continue on your same 4 weekly schedule. If you have missed your dose by more than 3 days then take your dose as soon as possible and discuss with your specialist centre about the timing of the next dose.

I will be in the hospital when my next dose is due

Take the burosumab with you in a cool bag into hospital if this means you will miss your dose date by more than 3 days.

I am travelling at the time my next dose is due

You should aim to have your next dose of burosumab from 3 days before to 3 days after the due date. If you are not at home within these times, then arrange for a cool bag to take the burosumab with you. Don't forget the needles, syringes and sharp box (smaller ones are available). Depending on how and where you are travelling you may also need a letter confirming the medication, who it is for and why from your specialist centre.

I have a fever or feeling unwell when my next dose is due

We would recommend you continue to take your burosumab if you can and let your specialist centre know if you feel too unwell to take the burosumab.

Getting more information and support

For more information about XLH, including other practical information and support, visit our website at <https://xlhuk.org/>

If you need more information or support, talk to your healthcare professional or you can email the charitable organisation at <https://xlhuk.org/contact-us/>

XLHuk.org

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This information is based on the latest evidence and clinical practice. It should not replace advice from your own healthcare professionals.

To give us feedback on this fact sheet, email us at contact@xlhuk.org

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