

If you have any questions, queries, or require more information, please contact the department:

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Monday to Friday (excluding bank holidays)

8.30 am to 4.30 pm

An out-of-hours answering machine is available

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## Orthognathic Surgery Patient Information Leaflet

The Welsh Centre for Cleft Lip and Palate

Morriston Hospital

Swansea

[www.wales.nhs.uk/cleft-team](http://www.wales.nhs.uk/cleft-team)

## What is orthognathic surgery?

The type of surgery that you are considering is known as a maxillary advancement or osteotomy. The distance between your top and bottom teeth may be too great to correct by simply moving your teeth, so orthognathic surgery may be a choice for you. Orthognathic surgery involves altering the alignment of the jaws. The main aims of this surgery are:

1. To improve the relationship between your upper and lower jaws.
2. To improve the way you eat and speak by aligning your teeth and correcting the way your upper and lower teeth meet. Many speech sounds are made with the tongue inside the mouth with the tongue behind your top teeth. You may have difficulty pronouncing some sounds, such as 's' and 'z' if your top jaw is further back than your lower jaw as the tongue cannot easily sit behind your top teeth. Orthognathic surgery helps to bring your top jaw forward, allowing your tongue to sit in the correct position to produce some sounds.
3. To improve your facial and dental appearance. Orthognathic surgery may also help to alleviate obstruction, making nasal breathing easier.

## Further treatment

Further orthodontic treatment to complete the alignment of the teeth is almost always required for several months after the operation. When the fixed brackets are removed, retainers will be fitted and you will be asked to wear them on a part-time basis indefinitely.

In some cases, more than one operation is planned, such as surgery to your nose. These are usually smaller procedures and are performed after jaw surgery has healed.

We hope this information leaflet has answered many of your questions. However, if you have any further questions, please make a written note (so that you do not forget) and discuss them with the team.

## Further information

More information can be found at:  
<https://www.bos.org.uk/Your-Jaw-Surgery>

symptoms in the ear or a change in hearing. This usually relates to a change in the pressure in the middle ear and it arises due to a change in the function of the Eustachian tube (the tube that runs from the back of the nose to the ear). This happens because the position of this tube can change when you undergo jaw surgery. The changes in tube function are usually mild and transient and so they usually resolve quickly without any need for treatment. As part of your assessment, we will therefore arrange for you to see the ENT surgeon on the team and organise a hearing test for you before and a few months after surgery.

### **Post-operative treatment**

X-rays will be taken before leaving hospital to enable the consultant to check the new position of your jaws. Following discharge from the ward, you will be seen at regular intervals in the Outpatient Department, at first quite often, then at yearly intervals, to check your progress. This is for us to check that your operation is stable and further photographs, models and X-rays may be taken. These visits are also for you to talk to us about any problems you may have.

### **What happens before surgery?**

Every surgery is planned individually. To decide which method of treatment is the best for you, a few investigations need to be carried out. These include:

- A full clinical examination of your face, jaws and mouth
- Special X-rays of your face and jaw
- Impressions to make casts of your teeth
- Photographs of your face and mouth
- Speech assessment
- Psychology assessment - at the stage where you and the team are deciding about whether to go ahead with orthognathic surgery or not
- ENT and hearing assessment

We also need to know whether you are receiving (or have received) any medical treatment. Using the information obtained, the team will discuss treatment options with you. You may need other appointments before a final decision is made and explained to you.

Before a decision is made regarding orthognathic surgery it is imperative that you have good dental health and are seeing a dentist regularly. Surgery and/or orthodontics will not be considered if you have untreated tooth decay or gum disease. You will be expected to see your dentist regularly throughout your treatment as well as keeping a healthy diet and good oral hygiene.

Prior to surgery, you will usually require orthodontic treatment with fixed appliances (braces) to place your teeth in a suitable position to allow the jaws to be corrected. These appliances are usually left in place after the surgery to maintain the correction and to ensure the bite and appearance are as ideal as possible.

In total, these appliances are in position for about 18 months prior to surgery and six months post-surgery, but this can be longer in some difficult cases.

Once your orthodontic work is complete, you will be sent an appointment to attend a clinic, which includes a brief psychology consultation in relation to preparing for surgery.

One to three weeks prior to the operation a long outpatient appointment is necessary to check details, discuss any problems or answer any questions you may have and arrange routine radiographs, photographs and dental impressions.

You will usually be admitted to hospital on the day of your operation.

## **Changes in mood**

It is common for people to report low mood in the early days and weeks after the surgery. This should start to settle down within 2 – 3 weeks. The psychology team can offer support face-to-face in clinic or by telephone if needed.

## **Speech**

Initially your speech may sound nasal, but this usually settles down in the early weeks and months following surgery. You will be seen six months and one year after surgery for a full speech assessment which will be able to deduce whether there have been any changes to the way your speech sounds. If it is felt that your speech has a nasal quality due to your palate not reaching the back of your throat to close off the nose, further investigations, such as an X-ray, may be considered. This will be discussed in detail with you if required.

## **Dental health**

You will be given advice about looking after your teeth post-surgery. It is important that your mouth and teeth are kept clean to prevent any dental decay, soreness of the soft tissues and infection in the operation sites.

## **Ears and hearing**

There is some evidence to suggest that a small percentage of people who undergo orthognathic surgery develop

It is common after this kind of surgery to have numbness in the area of the mouth and face which has been operated upon. This usually resolves though it can take months. In the area of the lower lip and chin especially, it does not always fully recover.

### **Problems with swallowing**

After a short while you will be able to swallow normally and encouraged to take fluids and food by mouth. It is particularly important to keep a high standard of oral hygiene and you will be encouraged to brush your teeth and clean your mouth after each meal. An antiseptic mouthwash will be prescribed but this is not a substitute for good tooth brushing.

### **Diet**

Consultations with the dietician will be arranged while you are in hospital and you will be given a diet sheet to take home. Your weight may be checked in the clinic at intervals during this period. It is always possible to have a liquid diet after surgery and usually semi-solid foods are possible too. Some weight loss can be expected but you will usually regain the weight quite quickly as you recover.

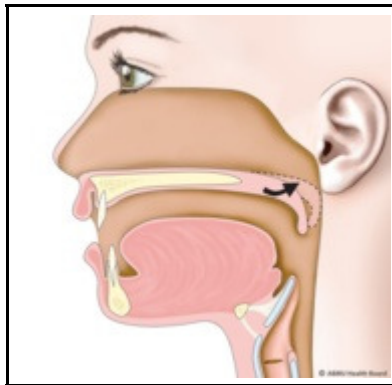
### **What are the risks of the surgery?**

All operations involve a degree of risk related to the general anaesthetic. This, however, is a small risk. Following the operation, you may experience numbness around the jaw which may last for approximately six weeks to six months, but in some instances may be permanent.

### **Speech: tone of voice and nasal airflow**

Research suggests that about one in five patients (20%) who have had a cleft palate will experience some increase in hypernasality (nasal speech) following surgery to move the upper jaw forward due to the palate (roof of your mouth) being moved. The palate has a vital role in speech production as it closes off the nose from the mouth during speech. Most sounds produced in English are made with the palate raised with air coming out of the mouth. These are called 'oral' sounds (for example, p, b, t, d, k, g, f, v, s, z, sh, ch, j). In addition to this there are three sounds (m, n and ing) where the palate is lowered, allowing air into the nose. These sounds are therefore called 'nasals'.

The palate is attached to your top jaw and during maxillary advancement is moved forward. Occasionally the forward movement can affect the ability of the palate to reach the back of the throat to shut off the nose when speaking. This can result in speech sounding nasal, as air escapes from the nose.



Soft palate moves up against the back of the throat to close off the nose allowing all air to pass into the mouth for oral sounds.

You may require a blood transfusion to replace blood loss during the operation. This procedure is avoided wherever possible. A bone graft is also sometimes necessary, and this is usually taken from the pelvis (hip). This can be more painful than the facial surgery.

The surgery is carried out under general anaesthetic.

**You must bring a child's small toothbrush into hospital to help clean your teeth after the operation.**

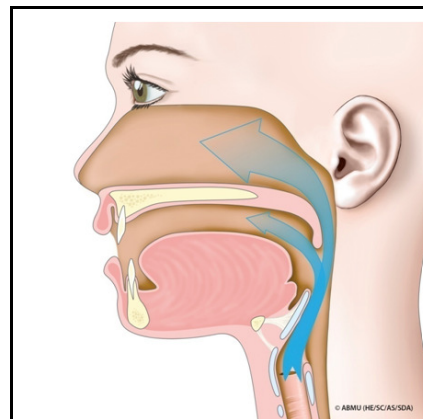
### What happens after surgery?

There will be several things which may concern you:

#### **Pain, Swelling and Numbness**

Swelling can be expected following these procedures. The amount of swelling varies according to the individual and the type of surgery carried out. Steroids will be given to you to reduce the swelling you experience. Most of the swelling will resolve within two to three weeks, but some may persist for several months depending on which operation was carried out. Antibiotics are given to prevent infection.

Analgesia (pain control) is always available, but most patients are surprised to find that they feel little pain and describe it as 'discomfort' only.



Palate not closing off allowing air to escape into the nasal passage causing speech to sound nasal.

### What happens during surgery?

At the completion of the first stage of the orthodontic treatment, the surgery is undertaken. This requires hospitalisation and is performed under general anaesthetic in the operating theatre. The recovery period in hospital is usually 1-2 days. Prior to admission, routine blood screening and other investigations including physical examination are necessary to ensure that you are fit for the operation to be carried out. The nurse practitioner or anaesthetist will examine you and you will have an opportunity to request further information regarding the anaesthetic from him/her.

Prior to going to theatre, you will be given pre-medication to help you relax. Wherever possible, the surgery is carried out via incisions inside the mouth to avoid producing scars on the face.

This kind of surgery involves creating fractures of the jaws so that the bones can be moved into new positions. They are often fixed there with small plates and screws - these rarely need to be removed.

Rarely, the bones may split unfavourably. If this occurs then the day following surgery you may have your jaws held together with small elastic bands, so you cannot open your mouth. You will always be seen by the dietician prior to discharge. If the jaws are held together, the fixation is usually maintained for a period of 6-8 weeks. Light elastics between the upper and lower teeth (which you can put on and take off yourself) may be needed for a few weeks.

### Will this happen to me?

Your speech will be formally assessed before you begin treatment for maxillary advancement by a specialist speech and language therapist. This will involve a speech assessment which is audio recorded. It is difficult to predict who will have difficulties with air coming down the nose, but the speech assessment will help the cleft team to determine whether you are at high or low risk of developing nasal speech. If the speech assessment shows that your palate moves well, the moving of your jaw in surgery may not affect your speech. If it is thought your palate is short, has poor movement or is scarred, you may be at risk of developing nasal air escape when you speak post-surgery. This will be discussed with you before you decide whether to undergo treatment. You may find that some sounds that are difficult to produce because of the alignment of your jaws are easier to make following this type of surgery.

For some patients, the improvements in facial appearance far outweigh any deterioration in speech, but it is important that you are fully informed about the risks to help you make your decision about surgery.