

Orthognathic (jaw) Surgery



Information for patients

Department of Maxillofacial Surgery,
Sheffield Teaching Hospitals



This leaflet is designed to help you understand what is involved in having orthognathic (jaw) surgery.

It explains some of the common side effects and complications associated with this procedure that you may need to be aware of.

It is not meant to replace discussion between you and your surgical team, but it may help to answer some of your questions.

What is orthognathic surgery?

Orthognathic surgery is an operation to reposition the jaws within the face. The operation aims to improve the gap between the lower and upper jaws, which will enable the teeth to bite together better. This also has the benefit of balancing your facial appearance.

Most patients are delighted with the results, and although there may be some difficult times during the treatment, once it is over the benefits are often significant.

Who will be treating me?

Your treatment is carried out within Sheffield Teaching Hospitals and is led by a team made up of consultants: a maxillofacial surgeon and an orthodontist.

Our consultant orthodontists are qualified orthodontists who have undergone specialist hospital training to enable them to treat your complex problems.

Our consultant maxillofacial surgeons have undergone a full surgical training coupled with dental expertise. All surgeons are on the General Medical Council Specialist List for Oral and Maxillofacial Surgery.

Sometimes other health professionals may need to be involved in your care. This might include dietitians, speech and language therapists, clinical psychologists and psychiatrists.

Why is an operation (surgery) needed?

We only perform jaw surgery if it is appropriate, if the patient wants it to be done and the patient is keen to undergo treatment.

It is not always possible to change your teeth and bite using only braces (orthodontics). This is because the bones of your face and jaws, in which the teeth sit, may be out of balance with one another. Orthognathic surgery is able to improve large gaps between the jaws and balance the shape of your face.

Why do I need orthodontic treatment as well as an operation?

If your jaws are to be moved into an improved position, it is important your teeth are also moved so they will meet better after the operation.

Fixed “train track” type braces are fitted about 18 months before surgery (but it may take longer). They are worn for up to six months after surgery, until the teeth are finely adjusted and stabilised. Lastly, there will be a period where a removable retainer brace is worn at night that holds the teeth in their new position.

Do I still need to see my regular dentist?

Yes. It will be important that you still have regular check-ups with your usual dentist throughout your treatment. Your orthodontist will not be checking your teeth for decay.

How long will the treatment take?

In total, the treatment usually takes about two and a half to three years, with the surgery occurring between 18 months and two and a half years after the start of orthodontics. Please note that missed appointments and any breakage of the braces lengthen the period of orthodontic treatment.

Planning prior to surgery?

When you are ready for your operation you will be seen again at a joint orthognathic surgery clinic, so your team can discuss with you your expectations and proposed surgical movements.

Planning continues with the production of surgical plastic wafers that fit over and between the teeth, guiding your surgeon at the time of surgery. To make these wafers you will need some further moulds of your teeth, facial measurements and, in some cases, a 3D Cone Beam Computed Tomography (CBCT) scan is required. A CBCT scan is a low-dose X-ray examination, which produces a very precise 3D image of your teeth and bony facial structures.

What does the operation involve?

The operation is carried out inside the mouth, so there are no external scars. Occasionally, tiny incisions (less than 4mm in length) are made on the face on the bridge of the nose or under the jaw line, but these are usually virtually invisible a few weeks after surgery.

[] A. Double jaw surgery (Bimaxillary osteotomy)

During this surgery the upper and lower jaws are cut precisely, to avoid damaging important structures like the teeth and the nerves which give feeling to the upper and lower lips, gums and roof of the mouth. The upper and lower jaws are then repositioned to correct the bite of the teeth.

The jaw bones are then fixed using plates and/or screws, which allow the bone to knit together and heal in the correct position. These are very small titanium plates and screws, which normally stay in place indefinitely. Braces are then used to settle the bite over a period of at least 6 months. Surgery aims to produce a well balanced facial appearance and a good functioning bite.

[] B. Lower jaw surgery (Mandibular osteotomy)

During this surgery the lower jaw is cut precisely, to avoid damaging important structures like the teeth and the nerves which give feeling to the lower lip. The lower jaw can then be repositioned to correct the bite of the teeth, and to improve the position of the chin.

The jaw bone is fixed by plates and/or screws, which allows the bone to knit together and heal in the correct position. These are very small titanium plates and screws, which normally stay in place indefinitely. Braces are then used to settle the bite over a period of at least 6 months. The aim is to produce a well balanced facial appearance and a good, functioning bite.

[] C. Upper jaw surgery (Maxillary osteotomy)

During this surgery the upper jaw is cut precisely, dividing the top jaw and repositioning it in a new position, correcting the bite of the teeth.

The jaw bone is fixed by plates and/or screws, which allow the bone to knit together and heal in the correct position. These are very small titanium plates and screws, which normally stay in place indefinitely. Braces are then used to settle the bite over a period of at least 6 months. The aim of the operation is to produce a well balanced facial appearance and a good, functioning bite.

[] D. Chin surgery (Genioplasty)

During this surgery the chin is divided and repositioned in its new position. The chin bone is fixed by small titanium plates, which allow the bone to knit together and heal in the correct position. These plates normally stay in place indefinitely. The aim of this surgery is to produce a well balanced facial appearance.

[] E. Upper jaw widening surgery (SARPE)

During this surgery the roof of your mouth is surgically divided. After 3 to 5 days you will be instructed to turn the screw in your upper brace appliance, to gently widen the top jaw in very small amounts. You will carry on turning the screw twice every day for a number of days, until the desired widening is achieved. This will produce a large gap between your upper central incisors, which will gradually start to close as your teeth drift towards each other over the next few months. New bone forms in the gap, and fixed braces are then used to straighten your teeth and further close the gap.

The aim of this surgery is to produce a good, functioning bite with the top teeth now meeting and matching better with the bottom teeth. The teeth are not normally wired together, but small elastic bands are used between the top and bottom braces to guide the teeth into their new bite.

Will I be swollen and in pain after my surgery?

The main problems after surgery are numbness and swelling and often some bruising, rather than pain. Everyone is different, but most patients find the swelling is at its worst at 36 to 72 hours after the surgery and then it gradually goes down over the next fortnight.

To help to reduce the swelling you will be given a Hilotherapy face mask. This is connected to a Hilotherapy machine that pumps cold water around the mask to reduce pain, swelling and bruising. Your final appearance will initially be masked by the swelling and may take several months to emerge as the shape of your face adjusts.

Pain and discomfort is worse during the first 24 hours and will be controlled with regular painkillers. You may find it uncomfortable breathing through your nose, especially if you have upper jaw surgery and you may have a sore throat following your anaesthetic.

You may also feel uncomfortable and “sorry for yourself” for the first few days, but this normally settles over time. In our experience, older patients seem to find these symptoms worse and take longer to get over their operation than younger patients.

What are the complications associated with this procedure?

This is usually a very safe procedure, which is carried out regularly in this hospital by specialised and experienced clinical staff. Complications with this type of surgery are, fortunately, rare and may not apply to you, but it is important that you are aware of them. The most commonly reported ones are:

•Numbness

Your lips, chin and gums may all be numb immediately after your operation. The upper lip recovers relatively quickly, while the lower lip is much more variable and may take six to nine months to get normal feeling back. In 30% of cases, there may be some permanent loss or alteration of sensation, but the lips look and move normally, and surveys suggest that this rarely bothers patients.

•Infection

The small titanium plates and/or screws are usually left in place permanently. In less than 10% of cases, the plates may have to be removed if they become infected. If this is the case, the plates can be removed during a short day case procedure.

•Readjustment of the bite

Occasionally, patients may wake up from their relaxed state (caused by the anaesthetic) and the strong jaw muscles then alter the position of the jaw. Although the bite may be only a few millimetres out of place, a second operation to adjust the bite fixation may be necessary.

•Surgical relapse

With most patients, significant relapse is not a problem. However, in those who are having complicated surgery (movement of 10mm or more in one jaw, patients who had a cleft palate, or those with a particularly unusual bite), relapse can occur. This is where the lips, tongue, muscles and skin of the face pull the face and teeth towards their original position. If relapse does occur, it is exceptionally rare for this to be significant. However, there is also orthodontic relapse and long-term age changes which the orthodontist will discuss with you.

•Blood loss

Blood loss is usually minimal and a blood transfusion is rarely needed. Less than 1% (1 in 100) of our patients have needed a blood transfusion.

•Limitations of mouth opening

There may be limitations of mouth opening, but this resolves as healing progresses. Symptoms of jaw pain and dysfunction can be made worse by jaw surgery.

•Upper jaw surgery

An operation on the top jaw may alter the shape of your nose and very rarely result in visual disturbances.

Your surgeon and orthodontist will discuss your individual risk rates for your treatment.

What are the risks of having a general anaesthetic?

This treatment is not compulsory or life saving, and whilst there is a very small risk of not waking up after a general anaesthetic, this must be balanced with how much the tooth/jaw position concerns you and whether an operation can definitely improve jaw position.

Immediately following a general anaesthetic you may feel tired, dizzy or weak. You must have someone to collect you and stay with you for the first 24 hours.

During the first 24 hours, you must not drive or operate any motorised vehicle or electrical equipment, sign any legal documents, make any important decisions, or drink any alcohol. You may feel weak or dizzy at times during your first 7 to 10 days. If this happens, sit down until the feeling passes. You may also have the postoperative “blues”, though this should soon pass.

How long will I be in hospital?

This depends on the individual but most patients stay in hospital for 1 or 2 nights after surgery. People vary in their speed of recovery, but you should consider taking between 2 and 6 weeks off from your usual commitments.

Can I eat normally after surgery?

The mouth opens and closes normally, even on the day of surgery, but this opening is limited by the elastic bands placed between upper and lower teeth and swelling. You will be encouraged to eat and drink from the first day and gradually progress from soft, very mushy or liquid food, to a normal but soft diet over the next few weeks. Our dietitians will give further advice and there is a separate information sheet available on managing your diet after jaw surgery.

Will I look different after the surgery?

You will almost certainly look different to some degree; quite how different depends on the extent of your original problem and how much the jaw(s) have had to be moved. Orthognathic surgery aims to balance the bony framework of the face, so that all the features are in proportion to one another, producing a pleasing facial appearance and teeth that chew better. The vast majority of patients are delighted with the results, and although there may be some difficult times during the treatment, once it is completed the benefits will often last a lifetime.

Is there an alternative?

You can choose not to have the operation or braces. You do not have to have the operation unless **you** want it.

Although there are always new developments in medicine, at the moment this is the most successful and reliable method of improving your type of dental and jaw arrangement.

Who can I contact with queries and concerns?

You can contact the maxillofacial department on:

•0114 271 7821

Monday to Friday, 9.00am to 5.00pm

Outside of these hours, please contact the on-call maxillofacial surgeon at the Royal Hallamshire Hospital:

•0114 271 1900

Further information

Please feel free to contact your team if you have any further questions.

Your Consultant

Maxillofacial Surgeon:

Your Consultant

Orthodontist:

British Orthodontic Society

BOS has an online resource consisting of a patient journey, patient stories, animations of surgery and other resources, which you may find helpful.

•YourJawSurgery.com

Your surgery explained

•Top jaw surgery (maxillary osteotomy)

Top jaw forwards (maxillary advancement)

Top jaw upwards (maxillary impaction for gummy smile)

Top jaw surgery for open bite (maxillary impaction)

Top jaw (segmental) surgery for open bite (maxillary segmental)

Top jaw widening (SARPE)

•Lower jaw surgery (mandibular osteotomy)

Lower jaw forward (mandibular advancement)

Lower jaw and chin forward (mandibular advancement and genioplasty)

Lower jaw backwards (mandibular setback)

•Double jaw surgery (bimaxillary osteotomy)

Top jaw forward, lower jaw backwards (maxillary advancement and mandibular setback)

Double jaw surgery for open bite (maxillary osteotomy for open bite)

•Other types of surgery

Lower jaw surgery (mandibular osteotomy for asymmetry)

Double jaw surgery (bimaxillary osteotomy for asymmetry)

Chin surgery (genioplasty)

Questions and notes

Department of Oral &
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