



North West London, Hertfordshire and Berkshire Orthognathic Network

Orthognathic (Jaw) surgery

Introduction

It is essential that you have read this leaflet before agreeing to begin any treatment. It forms part of your consent process and you will be asked to sign that you have read this before we carry out your operation. If you are unable to confirm that you have read and understood this information, we will be unable to proceed with your treatment.

This leaflet contains information about Orthognathic (jaw) surgery which is corrective surgery to the jaws. It is a specialist field that looks to correct dental, jaw and facial disproportions and in some patients sleep apnoea, with a combination of surgery and in the majority of cases, orthodontics.

How can orthognathic (jaw) surgery help?

Orthognathic surgery aims to correct functional problems with the jaws and teeth. Depending on the type and extent of the surgery, treatment will aim to improve the position of the bite and chewing between the jaws. In more complex cases it may improve speech and breathing and help to balance the appearance of the face. This type of surgery has been shown in many patients to improve quality of life and increase self-esteem and self-confidence.

Do I need jaw surgery?

That depends. There are some circumstances where if it is not carried out, there can be long-term detrimental effects to your teeth, gums and jaws that may cause substantial disability to your overall health and quality of life later on. Your consultants will advise you on all your available treatment options, but the final decision lies with you.

We offer this service to you if you want it and if you meet a certain criteria, which indicates that your bite, chewing function, speech and breathing can be improved through this treatment.

We may also offer it if your bite and appearance are felt to be abnormal as a result of growth problems resulting in disproportions between the jaws, facial asymmetries, skew or long/short faces. It may also be indicated following facial trauma, birth

defects such as cleft lip and palate and in some instances to address Obstructive Sleep Apnoea (OSA).

If you wish, you may ask to speak in confidence to a patient who has had this treatment about their experiences and we will endeavour where possible to arrange this for you.

Who will be treating me?

Your treatment will be led and managed by a multi-disciplinary team of consultant maxillofacial surgeons and orthodontists.

With the exception of some cases, orthodontic braces are almost always needed before we can carry out the surgery. In the rare event where braces are not used, it is still advisable to be seen by a consultant orthodontist and a surgeon in our joint orthognathic clinic for an opinion.

The consultant orthodontists who will be managing your brace work have qualified as dentists and subsequently undertaken numerous years of further specialist training in orthodontics. Our consultant orthodontic colleagues have had higher specialist fellowship orthodontic training in a hospital environment, so as to manage complex orthodontic/surgical problems in our hospitals.

The consultant maxillofacial and oral surgeons operating on you are dually qualified in dentistry and in medicine with specialist higher surgical training and board certification in Oral and Maxillofacial Surgery (OMFS). OMFS is one of the nine recognised surgical specialities registered with the General Medical Council (GMC) in the United Kingdom.

Our Regional North West London Maxillofacial Service is the only surgical unit in North West London where these operations take place. Our consultant surgeons have a dedicated sub-specialist interest in this field and carry out a high volume of these procedures.

We are a large post-graduate teaching centre with registrars, clinical fellows and senior house officers. They form part of the team and will manage you before, during and after your operation on the clinics and wards. Together with the help and services that these doctors provide, we have responsibility on the NHS to train the next generation of professionals. The responsibility of your treatment lies with the consultants, but during your orthodontics and surgery, registrars and training grade doctors will be participating in your treatment before, during and after the operation, including doing parts of the operation. Our nurses and technicians are further integral members of our team who you will meet over your course of treatment.

Where will I be treated?

You may be treated in one of the following clinics:

- Watford General Hospital
- Wexham Park Hospital
- Hillingdon Hospital
- Northwick Park Hospital

Patients presenting at West Middlesex and Ealing Hospitals are referred to the joint clinics at Northwick Park Hospital and their pre-surgical and post-surgical orthodontics takes place at Northwick Park Hospital.

Again, depending on where you live or your preference, you can have the pre-surgical and post-surgical orthodontic work carried out in any of the above mentioned four hospitals. All patients however, are operated on in one location, at the Regional North West London Maxillofacial Service based at Northwick Park Hospital, where our surgeons and the surgical 'Maxillofacial' hub are located. At Northwick Park Hospital we have dedicated operating theatres, nursing staff, dieticians and a maxillofacial ward, where patients are looked after following their operation.

When you go home from hospital after your operation, you will continue to be managed with your post-operative orthodontics in the unit you were originally referred from.

Is there an age limit to these procedures?

There is no set upper age limit for these procedures. However, not everyone is suitable for treatment. There is a lower age limit and we don't routinely carry out orthognathic surgery on women less than 16 years of age or men under 18 years of age as there may still be residual growth in your jaws and face.

What will happen in the lead up to my orthognathic surgery?

Surgery is the culminating point in your treatment and is rarely done first. Prior to this you would have probably visited your dentist or GP with some complaint relating either to your teeth or position of your jaws/face and they would have referred you onwards to one of our consultant orthodontists or surgeons. Depending on the initial conversation, your needs and whether you fulfil certain criteria, you will be referred into a joint orthognathic/facial deformity clinic.

What happens in joint orthognathic clinics?

In these clinics, our multi-disciplinary team of consultant maxillofacial surgeons, consultant orthodontists, registrars and other junior doctors, dentists and nurses will see you. We will introduce ourselves to you and to your family members. We

encourage close family members who may be looking after you to attend early on in treatment. This is so that they too get to know what may be involved in your treatment and none of your loved ones are surprised or caught off guard with the treatment, particularly the surgery.

We will familiarise ourselves with your concerns and aspirations and we will assess you clinically. We will need to take X-rays, photographs and impressions of your teeth.

In these joint clinics a lot of effort is put into explaining to you what is involved in the treatment, what you can expect and possible complications of braces and surgery, as well as alternative treatments. We will answer any questions that you may have. You do not have to make up your mind straight away about proceeding with treatment, but can go home and think about it. We can book you another appointment to come back and discuss treatment further and ask any other questions you might have before you choose to continue.

If you do decide to go ahead with joint treatment (orthodontics and orthognathic surgery), we will plan your proposed treatment and organise appointments for you to commence with braces.

Frequently asked questions:

1. Why do I need jaw surgery? Can't you fix my bite with braces alone?

You would be asking this question if your main concern is your misaligned teeth and you are not bothered by your facial appearance.

Misaligned teeth, such as overcrowding occurs when the jaws are too small to accommodate all of the teeth. This problem can often be remedied with braces alone and for this you do not need hospital-based orthodontics or surgery and your case can be managed by your own dentist. We will tell you if that is the case.

However, when a jaw is too small or too big in relation to the other jaw together with overcrowding or other misalignment of your teeth and bite , braces alone cannot usually remedy the problem effectively because even if teeth are aligned (made straight), your top and bottom teeth may not fit together.

In mild cases, if this problem is not correctly identified, or if the primary care orthodontist chooses to 'camouflage' the problem with your informed consent, be aware that the final facial appearance may not be the best they could be and possible relative stability of the orthodontics may occur. So long as you are aware of this and you elect to go in that direction, then this is not a problem.

2. Why do I need braces and will surgery alone not suffice?

You would be asking this question if you were not too bothered about the position of your teeth, but you were bothered by, for example a protruding or retruding jaw, an open bite, a skew face, or some other facial problem.

Although the operation is to your jaws and face, braces are necessary in the overwhelming number of cases for several reasons:

Firstly, it is rare to have a disproportion or a distortion in your jaws/face and not have a dental malocclusion (overcrowding of teeth, scissor bite, protruding teeth etc.). If these dental problems are not corrected, it is very difficult to put your jaws surgically in a position that will be comfortable for you, in which your teeth will bite correctly and comfortably for chewing. Also, the surgical result will be less stable and finally we will not get the maximum correction possible to your face.

The three fold purpose of orthodontics for jaw surgery is:

- a. To change the position of the teeth to where they best belong relative to the underlying bone, and relative to the surgical movements needed.
- b. To make your teeth straight.
- c. To position the teeth in the jaws so that they meet as closely to as perfect as possible during and after the operation.

How and when does my joint orthodontic/surgical treatment start?

In almost all cases, the treatment starts with orthodontics, after the surgeon and orthodontic consultants have decided on a treatment plan, have discussed what is involved with you and you understand why you are having the treatment.

On the NHS, the braces are fixed metal brackets on the outside surfaces of the teeth.

Your orthodontist will need to see you every four to six weeks to adjust the braces on your teeth. We will be seeing you jointly (orthodontist and surgeon) several times before your surgery in a joint clinic. If your oral hygiene is poor or you do not keep appointments for your braces, it is at our discretion to discontinue the treatment. Your braces stay on before, during and after the operation for several months until your orthodontic treatment is completed.

If it is decided that you will be having surgery to your bottom jaw, your bottom wisdom teeth are usually removed at least nine months before the surgery takes place or often before orthodontics even starts.

When will I be operated on?

You will be having the operation to your jaws approximately eighteen months to two years after starting orthodontics.

A few weeks before the operation, we will see you to confirm the final surgical treatment plan. Impressions and photographs will be taken and the technician will ask you to come in to make some plastic wafers to fit your teeth, which are surgical guides for the operation.

You will be sent a letter to come into Northwick Park Hospital for a surgical pre-assessment including blood tests and swabs by a nurse several days before surgery, together with instructions of what to do before you come to surgery. Your pre-assessment will take place in the Theatre Admissions Unit, Level 2.

How should I prepare for the operation?

It is advisable to have a blender for your food for the first few days and a baby tooth brush. A supply of soluble paracetamol and ibuprofen is very useful provided you are not allergic to any of these or if there are any other medical reasons why you should not take them,

It is imperative that you brush your teeth well and that your oral hygiene is immaculate, otherwise the surgeon will cancel your operation. If your mouth is not clean, the risk of infection rises substantially.

If you smoke, you must stop six weeks before the procedure and must not smoke for at least three months after surgery. Smoking increases the risk of infection in your jaws, pneumonia and causes other complications after surgery.

Under no circumstances are you to take herbal or homeopathic medication for at least a month before your surgery.

If you are on contraceptive medication, you must take alternative methods of precaution over your next cycle as the medication you are given during the operation interferes with the contraceptive hormones and you may fall pregnant if you are sexually active. If you think you may be pregnant or you are not sure, speak to the doctors about it, as the anaesthetic and procedure may have detrimental effects on a developing baby.

As a patient, what do I do on the day of the operation? What are my responsibilities?

On the day of the surgery you will be admitted to the Theatre Assessment Unit at Northwick Park Hospital. Your surgical team will see you to formally consent you for the operation and an anaesthetist will also see you.

Ensure that you tell the surgeon and anaesthetist of any medical problems or any medication taken, no matter how trivial or unrelated you think this may be.

The nurses will admit you and you will change you into a hospital gown. You must remove all under wear, head scarves, make-up, lip-stick, nail polish, nose studs, and any other body piercings, otherwise you will not be operated on. This is for your safety. If there are piercings in private parts of your body and you choose to leave these there, be aware that these may cause electrical burns to you from the diathermy used during the operation and your medical team will not be aware of this. Therefore, it is your responsibility to remove these.

What does the surgeon do during the operation?

This depends on what you are having done and it is complex, but we have outlined below what patients normally ask us in the clinic.

You will be put to sleep under a general anaesthetic and you will not be aware of anything. The whole of the operation will take place in the mouth, other than two small cuts on either side of the angle of your jaw (about 5 mm long) in the skin which heals with hardly a visible scar in 99% of cases. If you're having a genioplasty (chin operation) with the osteotomy, it is also performed in the mouth, usually as an osteotomy of the chin bone to reduce or enhance the chin.

A single jaw operation takes around 60-90 minutes and a double jaw operation takes two to three hours. Remember that you will be away from your relatives and they will not see you for six to eight hours from when you go to theatre as it takes time to do safety checks, anaesthetise you, prepare you for surgery, wake you up and move you to recovery where you will spend two to three hours before relatives are called. Please advise relatives of this. You will then stay overnight in the high dependency unit to recover, or you may be moved to the dedicated Maxillofacial ward called 'Gray Ward' on the 7th Floor of Northwick Park Hospital.

What can I expect after I wake up from the operation?

You will feel drowsy, slightly confused, but not usually in pain, though there will be discomfort. You may feel sick, but we have medication for this. There may be one or two elastics between your top and bottom jaw to support you. You will have a sore throat from the tube the anaesthetist passed down your nose when they put you to sleep. There will be an accumulation of saliva and some blood in your mouth, but the nurse will be there to help you and suck it out, make you feel comfortable and re-assure you.

A member of our surgical team will come and see you in recovery as you are waking up but you will probably not remember this. They will also visit you after the operating list is finished, which is usually after 5pm and they will see you again during morning rounds. We have on-call maxillofacial surgeons on site overnight and experienced nurses on the wards and in recovery and the high dependency unit who will look after you.

In the morning, the surgical team will see you. They will review your recovery and will decide whether you can go home. You may need X-rays and be seen by a dietician to help with supplements and dietary and fluid advice, but our guidance is to start trying to eat soft foods as soon as possible and to drink plenty of water after you leave the hospital.

You will go home with medication that we will prescribe for you. You will also be given oral hygiene instructions. You must clean your mouth after every meal or supplementary drink with gentle brushing of your teeth, rinsing with corsodyl® mouth wash or warm salty water (please do not swallow the salty water, but spit it out), which you can prepare at home after every meal. Maintaining your oral hygiene is imperative to your quick recovery.

What can I expect my face to look like immediately after the operation?

This varies from person to person. Depending on the procedure and your own facial tissues, you will be swollen to different degrees. Do not be concerned if initially one side of your face is more swollen than the other. Initially you will have more swelling the day after the procedure. The majority of the swelling gradually settles over the next three to four weeks. In addition to swelling there is often bruising which will spread downward as far as the chest over time.

As a rough guide, the swelling goes down by about 50% after two weeks, about another 20% after a further two weeks and another 10% the last two weeks. Six weeks after your operation you will be 80-90% recovered in terms of swelling and function and the rest settles down over the next two to three months. These are rough figures and every patient recovers at different rates. As a practical example, most people go out shopping after two weeks.

Surprisingly, few people complain of much pain, but rather discomfort, swelling and being unable to eat normally. You will have varied degrees of numbness around your lips and face, depending on the procedure immediately following your operation. You will feel tired from the operation and worn out for the first week.

There will be some mild bleeding in your mouth and throat for the first few days. If your top jaw has been operated on as well, there will be some expected bleeding from the nose. That will take up to two weeks to settle down completely and you will not be able to breathe through your nose for the first few weeks.

Initially, expect that you will dribble from your mouth for the first two weeks or so and struggle with eating, although we encourage you to drink fluids and have soft food as soon as possible.

You will need elastics between your top and lower teeth for a several weeks.

For the first two weeks you will need to be on a liquid diet and nutritional drink supplements if you are not eating enough. We encourage people to drink as much as possible and to start on a normal diet as soon as possible after the operation. You will need to be seen on a weekly basis for the first four to six weeks by your orthodontist and in the joint clinic with your surgeon to ensure everything is going well.

What could the serious complications with jaw/orthognathic surgery be?

Serious complications are unusual but include all the complications of any intermediate to major operation when general anaesthetics are used.

Patients and their families often ask us if any very serious complications can occur with this type of surgery, such as death, life threatening bleeding, life threatening infections, pulmonary emboli, loss of teeth and parts of the operated jaw. The answer is yes, any of the above may happen, but these are rare. We give the analogy of driving a car. Every time any one of us gets into a car, we all know, although it is very unlikely, that we could at any point be involved in a life threatening motor vehicle accident. Regardless of this, we all use motor vehicles because we feel the liberating benefit of getting from point A to point B is disproportionate to the risk of something seriously adverse happening in our journey.

To put this in perspective, however, from our audited, operated series over the last seven years of hundreds of operated patients, there have been no deaths, no life threatening infections or loss of parts of the jaws and teeth. There have been two patients admitted to intensive care with anaesthetic chest complications that have made a complete recovery and two life threatening bleeds which were successfully treated by our surgeons in theatre with no long-term adverse effects.

What are the more common complications related to orthodontic and orthognathic/jaw surgery?

- There is a risk of damage to your teeth, more commonly in 'segmental' orthognathic procedures. For instance, you may find that your tooth appears discoloured, becomes loose or develops a swelling. If this is the case, you will need to see your dentist for a dental assessment. If the tooth can be saved you may benefit from root canal treatment, but it can't be saved you may need to have it removed.
- With braces, if you do not keep your teeth scrupulously clean and use a combination of interdental brushes with fluoridated toothpaste/mouthwash you may be susceptible to developing dental decay. More commonly, on completion of treatment and removal of your orthodontic brackets you can develop unsightly yellow/white/brown spots on your teeth called 'decalcification'.
- In addition, a risk of orthodontic treatment is shortening and blunting of the root tips of teeth - a process known as resorption. This may increase your chances of

developing an irreversible form of gum disease and so the need to keep your teeth pristine clean cannot be emphasised enough.

- You may develop sinusitis like symptoms such as a heavy head and runny nose after an upper jaw procedure. In a few cases sinus/sinusitis symptoms can be prolonged and potentially life long. Our estimation from our clinical experience is that approximately 5% of patients do have long term sinus issues following upper jaw surgery.
- You will be swollen and there may be bruising as described above.
- You will lose some weight as you will initially struggle with a normal diet, again depending on what procedure you've had done.
- You will have varying degrees of numbness for the first few days, weeks and months around the lips and face. Regarding your upper jaw, there is a risk of 10% of permanent numbness or altered sensation in the top lip, teeth, gums and palate. Regarding your lower jaw, in 30% of cases there is a permanent loss of feeling to the lips, chin, gums and teeth or altered sensation including tingling and on the rare occasions, pain.
- 1% of patients may have a permanently numb tongue including altered taste.
- You may experience some mild scarring on your face following the single puncture incision on your cheeks, which is more apparent in darker skin tones. This is to allow for a screw and plate to be positioned during lower jaw surgery. These usually heal very well, but some patients may develop a scar.
- From our audited data, we have never come across a single person who has complained that they have not, after eight to 10 months, adapted to their numbness without a problem. Almost all our patients adapt to this quite well over a period of months and it does not usually affect their day to day life.
- There is no problem with movement of the lips or muscles in the face, as this nerve is very rarely affected.
- The surgery is to create harmony between the jaws and the teeth, not to improve any jaw joint related dysfunction, and potentially can make pre-existing symptoms worse.
- There is a risk of around 3% that you may need to be put back to sleep a few days after the operation to adjust the position of the jaws, if they are not sitting the way they should.
- We have found that blood transfusions are rare in single jaw procedures and in double jaw procedures our data indicate around a 0.3% possibility.
- Around 3% of our patients do get their jaws wired together for four to six weeks.
- Pain in the joints of the lower jaw following this surgery is unusual, but possible.
- Although, we are striving to change your face and teeth into a good and improved functional cosmetic position, the body has a 'memory', so to speak, of your previous anatomy. This may result in various degrees of what is known as 'relapse', both orthodontically and surgically. In other words, there will always be a tendency for your nerves, muscles, skin, tongue and lips to bring your face and teeth back to their pre-treatment position to some degree. The chances of going back to your pre-treatment position are very slim, but there may be some degree of relapse, not usually to any large extent, but on occasion it may. You can help by following the instructions of the orthodontists to wear different types of retainers on

your teeth as instructed. These may be removable or fixed depending on their advice.

- If you are having an operation to your top jaw, there is always a possibility of the shape of your nose changing slightly, depending on the surgical movements, because the nose is closely related to your top jaw. These changes are normally subtle and most people looking at you will not notice them, but you may. Changes to your nose will usually fit well with your face. Very few patients are bothered by these changes, but you need to be aware of them. The most common change is slight broadening of the nose. If you have had problems with breathing through your nose, surgery to the top jaw very often improves the breathing, but this is not of course the primary reason for jaw surgery. It is very rare for breathing to get worse following an operation to your top jaw. Our Consultant surgeons who perform these procedures carry out Septorhinoplasties for trauma and cosmetic reasons so, on the rare occasion that a patient's nose needs correcting, this can be managed.
- Transient infections two to three weeks after the operation can occur and are usually managed with antibiotics and they almost always settle down.
- Plates or screws may become infected after months and may need removing. This requires a relatively minor procedure under general anaesthetic. From our data, about 3% of patients require this

What should I do if I have a medical problem after I leave hospital?

In an **emergency** our specialist Maxillofacial team is available 24 hours on **020 8864 3232** at Northwick Park Hospital. If it is urgent and you can't speak on the phone come directly to the hospital Accident and Emergency Department.

Northwick Park Hospital Maxillofacial and Orthodontic unit

1. Maxillofacial Nursing desk (9am-5pm): Telephone 020 8235 4179/4137
2. Maxillofacial Technicians desk (10am-5pm): Telephone 020 8235 4236
3. Secretary for Mr Heliotis, Mr Shorafa, Consultant Surgeons, (9am-5pm): Telephone 020 8869 3141/ 020 8235 4006
4. Secretary for Mr Crow, Ms Hewage, Ms Izadi, Mr Ahmed, Mr Ismail, Consultant Orthodontists, (9am-5pm): Telephone 020 8235 4216
5. Gray Ward (Maxillofacial ward), accessible 24 hours a day, seven days a week: Telephone 020 8869 2502/2503

Contact details for the other hospitals that are part of the network:

Hillingdon Hospital Maxillofacial and Orthodontic unit

1. Reception and nursing desk (9am-5pm): Telephone 01895 279 224
2. Secretary for Mr Crow, Consultant Orthodontist: Telephone 01895 279 256

Watford General Hospital Maxillofacial and Orthodontic unit

1. Secretary to Mr Heliotis (9am-5pm): Telephone 01923 217 205/204
2. Secretary for Mr Moseley, Ms Sidhom, Ms Nightingale, Consultant Orthodontists, (9am-5pm): Telephone 01923 217 205/681

Wexham Park Hospital Maxillofacial and Orthodontic unit

1. Secretary for Mr Shorafa, Consultant Surgeon and Mr Power, Consultant Orthodontist, (9am-5pm): Telephone 01753 634076
2. Nursing desk (9am-5pm): Telephone 01753 634 074
3. Maxillofacial Technician's desk: Telephone 01753 634 077

A final note

The information provided in this pamphlet is a guide and covers most aspects of what patients want to know before their treatment. It is your responsibility to read the booklet or if English is not your first language, ask someone to go through it with you. Personal consultations will be needed for you to fully understand what you may need and expect from any treatment described and you are encouraged to ask as many questions as you wish.

It is natural to be apprehensive and worried about the surgery, particularly for your families. It may help to speak in private to a patient that has completed treatment. We routinely review our post-operative patients in our joint clinics and can easily arrange for you to speak to one of them should you wish to.

Although we recognise that this is a large undertaking and is by no means a small operation but to our experienced consultant surgeons, these procedures are carried out routinely in high numbers and have done so for many years. Remember, the decision to proceed with any treatment is entirely yours. We will do our best to guide you through each stage and support you, as we have done with hundreds of other patients in the past.

General Trust Information

Patient Advice and Liaison Service (PALS)

PALS is a confidential service for people who would like information, help or advice about the services provided by any of our hospitals. Please call 020 8869 5118 between 9.30am and 4.30pm or e-mail LNWH-tr.PALS@nhs.net Please note that this service does not provide clinical advice so please contact the relevant department directly to discuss any concerns or queries about your upcoming test, examination or operation.

If you would like this information in an easy to read format, large print, braille, different format or language, please contact the PALS team on 020 8869 5118 or email lnwh-tr.PALS@nhs.net We will do our best to meet your needs.