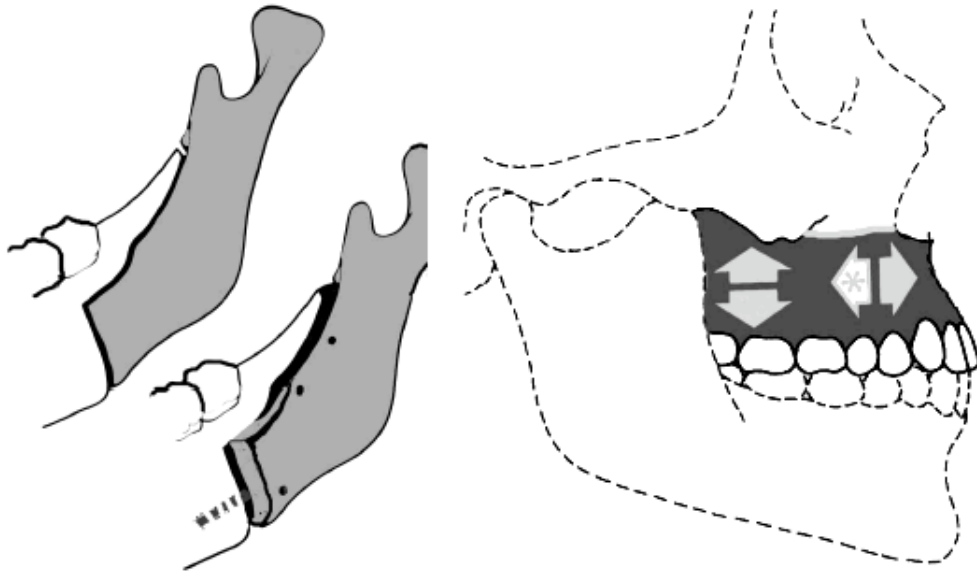


## MAXILLOFACIAL AND ORTHOGNATHIC SURGERY

Surgery for the correction of tooth and jaw misalignment



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**<http://WWW.FACESURGERY.IT>**

## **ORAL, JAW AND FACIAL SURGERY AND ORTHOGNATHIC SURGERY**

Oral, jaw and facial surgery is used to treat problems affecting the oral cavity, jaws and face.

Misalignments involving the teeth, oral cavity, jaws and face represent a large group of anomalies which, despite not being illnesses as such, involve deviations from the standard form, location and size of individual facial bones.

These misalignments and changes in form can be congenital, take shape and intensify during a person's bodily development or arise as a follow-on effect of trauma, tumorous growth or tooth loss.

As anomalies affecting facial bones and the upper and lower jaw lead to a change in tooth position in many cases, the first step taken by dentists and orthodontists who identify this pathology is often to refer patients to a specialist for surgery to the oral cavity, jaw and facial bones.

Orthognathic or orthopaedic oral surgery is both functional and aesthetic, as it not only corrects tooth positioning (thereby improving chewing and breathing functions) but also normalizes the aesthetics of the face by improving the harmony between its components.

Both the diagnostic process and follow-up treatment require the orthodontist and orthognathic surgeon (orthognathic surgery is a special area of oral, jaw and facial surgery) to coordinate their approaches. Communication between the surgeon and orthodontist is key to positive treatment results. Only close, almost symbiotic cooperation between the two before, during and after surgery - in addition to patient clarity across all surgical procedures - can bring about a satisfactory, successful result. Improvements in diagnostic and clinical methods and the availability of new therapeutic techniques have facilitated significant advances in this surgical field over the last few years:

1. Improvements in clinical-diagnostic techniques (THREE-DIMENSIONAL TOMOGRAPHY), enabling more precise diagnosis of jaw misalignment and aesthetic flaws including clearer illustration and

explanation thereof using digitally enhanced images.

2. Increasingly sophisticated, optimized orthodontic techniques (self-ligating appliances, absolute anchorage), which now make it easier to achieve optimum tooth positioning.
3. The ability to simulate temporomandibular movement using virtual techniques or complex articulators.
4. Modern anaesthetic techniques - and in particular the use of pharmaceuticals quickly absorbed and processed by the body - and controlled hypotension, which deliver reductions in blood loss and shorten both in-patient care (12-24 hours) and coming-round periods (you will be fully awake just an hour after the operation).
5. Modern orthognathic surgery sees oral operations carried out without skin incisions, and therefore avoids externally visible scarring.
6. Mobilized bone sections in the upper jaw, lower jaw, chin and zygomatic bone are now fixed in their new positions using titanium screws and mini-plates. This facilitates a swift return to normal function due to the redundancy of the wiring together of the upper and lower jaw (CLOSED MOUTH).
7. Jaw surgery can often be combined with operations to correct the chin, nose, cheeks and lips, as well as lipectomy and lifting for improved aesthetic results.

## **BEFORE AND AFTER JAW SURGERY: INSTRUCTIONS**

Clarity regarding issues linked to orthognathic surgery makes it easier to handle the difficulties and discomfort associated with this type of surgery. Please do not hesitate to ask Dr. Raffaini and his team questions if you are uncertain about any elements of your upcoming surgery.

**YOU ARE REQUESTED TO READ ALL OF THESE INSTRUCTIONS CAREFULLY AND ASK QUESTIONS IF YOU ARE NOT SURE ABOUT PARTICULAR ISSUES:**

**IT IS AN ESTABLISHED FACT THAT PATIENTS COPE BETTER WITH POST-OP UNWELLNESS AND OTHER COMPLAINTS IF THEY ARE WELL-INFORMED ABOUT THE SURGICAL PROCESS.**

**IN ADDITION, A GOOD SURGEON-PATIENT RELATIONSHIP CREATES A FOUNDATION OF TRUST WHICH SIGNIFICANTLY REDUCES PATIENT ANXIETIES AND RESERVATIONS.**

**PLEASE FOLLOW THE INSTRUCTIONS AND ADVICE SET OUT IN THIS INFORMATION SHEET.**

**DO NOT SOURCE ANY INFORMATION FROM INTERNET FORUMS OR PATIENTS WHO HAVE BEEN THROUGH SIMILAR SURGERY IN THE PAST. IF YOU HAVE ANY QUESTIONS, PLEASE ASK THE EXPERT - YOUR SURGEON.**

## 1. Pre-op preparation

Inform your surgeon of any pre-existing medical conditions, any medication you are taking and any previous medical or surgical problems.

A number of pre-op tests are required in order to rule out contraindications:

Blood sugar, azotemia, creatinine, bilirubin, full blood coagulation testing, aminotransferases, pseudocholinesterases, blood count with thrombocyte analysis, blood electrolytes, full urine testing, blood group identification, HBsAg, HBsAb, thorax x-ray, ECG.

Female patients only: 17 $\beta$ -Estradiol and pregnancy test (where applicable).

Any deviation from standard values identified by the above-mentioned tests may necessitate the rescheduling of the operation date in order to allow for the execution of more precise examinations and/or additional courses of treatment (especially in the case of anaemia and impaired blood coagulation).

**UNDER NO CIRCUMSTANCES SHOULD ASPIRIN OR SIMILAR PHARMACEUTICALS (NON-STEROID ANTI-INFLAMMATORIES) BE TAKEN IN THE TWO WEEKS PRIOR TO THE OPERATION - they impair blood coagulation and can lead to haemorrhages.**

AVOID THE CONSUMPTION of any of the following foodstuffs and products in the two weeks prior to the operation:

PINEAPPLE, ARNICA, ONION, GARLIC, TOMATOES, GINSENG (all of which may impair blood coagulation if consumed in large quantities).

Please inform your doctor if you are on any medication or taking medicinal products.

**Smokers** should refrain from smoking both before (4 weeks) and after (8 weeks) their surgery. This not only improves and accelerates wound healing and the knitting together of operated bone, but also reduces the risk of infection. It also enables you to avoid the unpleasant feeling caused by smoke irritation of your mucous membranes.

**Please inform your doctor if you observe a particular diet** (for example if you are vegetarian, vegan or similar) or exclude particular categories of foodstuffs from you diet. It may be advisable to change your diet **PRIOR TO SURGERY** in order to avoid haemorrhagic issues and problems during the healing process.

Vegetarian or low-protein diets may lead to heavier bleeding and bone healing difficulties.

Female patients must be absolutely certain that they are not pregnant. If you are unsure you should carry out a **pregnancy test** prior to surgery. In addition, it is recommended that you **refrain from taking the contraceptive pill for a period of at least two months prior to surgery.**

The following options are available if you wish to limit post-op swelling and accelerate the healing process:

- 2-3 facial lymphatic drainage procedures at a beauty clinic during the week before surgery.
- Professional mouth and tooth cleaning shortly before surgery.
- Careful cleaning of your teeth, gums and brace (in addition to other oral hygiene measures).

On the day of your surgery you should carefully clean your mouth and teeth before rinsing your mouth with a disinfectant mouthwash.

## **2. Anaesthesia**

You will meet with the anaesthetist on the day of your surgery, and they will run through planned anaesthesia and its potential risks with you. Please inform them if you are anxious about injections and needles or afraid of being placed into an induced sleep, as they will be able to assuage any fears you may have. You are not permitted to eat or drink after midnight on the eve of your surgery, as it is necessary for your stomach to be empty when you enter the operating theatre. Try to sleep during the night before your surgery (take an anxiolytic if required).

## **3. The day of the operation**

Please clean your mouth, teeth and brace especially carefully shortly before entering the operating theatre.

Once inside the operating theatre you will be laid onto an operating table. A central venous line will be inserted into your arm or the back of your hand. The insertion of the catheter is painless and facilitates the injection of fluids and medication without having to pierce your skin each time. The catheter will be removed as soon as you are able to take in fluids through your mouth further to the completion of the operation.

As the surgery focuses on your mouth and involves the use of a general anaesthetic, an endotracheal tube will be inserted through your nose and into your respiratory tract in order to ensure that you can be given respiration. The tube will be inserted once you have entered your induced sleep. Surgery lasts between 40 and 120 minutes and is completed while you are still in your induced sleep.

#### **4. The post-op period**

Further to surgery you will spend around 1 hour in the recovery room until you are fully awake and respond satisfactorily to a specific set of stimuli.

You will then be taken back to your room. It is necessary to place ice packs on operated areas of your face in order to keep swelling to a minimum. Your head must be kept in a raised position. The ICE and RAISED HEAD POSITION (3 PILLOWS) are also to be maintained during the days after the operation.

Minor bleeding from the nose and mouth is normal and no cause for concern.

Your mouth will be open, enabling you to breathe without difficulty. Your nose may feel heavy due to swelling and minor blood coagulation: This is naturally a temporary issue, and after a few days you will be able to breathe normally through your nose.

The throat ache which may be caused by the anaesthetics tube fed into your respiratory tract during surgery may continue for 2-4 days.

**It is best to keep visits during your time as an inpatient to a minimum. In addition, try to avoid having too many people around you in your clinic room and home during the first week after your operation, as too much fuss and activity may lead to over-exertion, stress and respiratory complaints.**

**It is recommended that you select someone calm but full of energy to assist you during the post-op period. Too much sympathy from family and friends is often more of a problem than the complaints brought about by surgery itself.**

It is entirely normal for you to feel down and exhausted after your operation. This feeling may disappear after a day, but will usually stay with you for around 3-6 days. Do not worry about this phase, as you will begin to feel better as soon as the complaints caused by your surgery start to subside.



DEPENDING ON THE TYPE OF SURGERY YOU UNDERGO AND HOW QUICKLY YOU RECOVER, YOU WILL BE AN INPATIENT FOR 8-48 HOURS.

## **5. Rubber bands for stabilization and quicker healing**

As modern surgical techniques see the jaws of operated patients fixed into place using metal screws and mini-plates, the immobilization you would have been faced with 10 years ago due to the wiring of the upper teeth to the lower teeth is a thing of the past.

A few days after surgery it will be possible to stretch small rubber bands between tooth sectors. These rubber bands maintain the new bite position whilst also allowing you to open your mouth in an almost normal way. Over the course of the first few weeks after surgery your doctor will gradually change the position and tension of these rubber bands.

It is very important that you keep to the instructions given to you, as it has been proven that patients who wear their rubber bands correctly achieve a better bite in shorter time, and orthodontic treatment after their operation will be finished quicker.

The rubber bands are fitted and worn for as long and as frequently as necessary. It is important to learn how to put them in and take them out, as this gives you greater freedom of movement at meal times and during oral hygiene work.

## **6. Blood loss**

Blood loss is generally limited. You can give your own blood for availability during the operation up to 20 days before surgery. This is not a requirement or recommendation, as no transfusions have been required during the last 2000 operations carried out. It is nevertheless necessary to check your blood count prior to surgery. More detailed examination is required if your haemoglobin value is found to be under 10.

If your haemoglobin tends to be low (anaemia) it is recommended that you follow a course of iron therapy during the month before surgery.

## **7. Nausea and vomiting**

You may suffer some nausea and vomiting during the hours after your surgery. Do not worry: Your stomach is empty, and your mouth is open and can be freely opened and closed.

If you need to vomit, please stay calm and turn your head to one side so that the fluid can flow out. Let the nurse know if you are feeling nauseous, as she will be able to give you an antiemetic (reduces nausea).

Please consult the doctor if you continue to feel nauseous or suffer stomach pains during the following days.

## **8. Nutrition and fluid diet**

You will be able to drink again around 5-6 hours after surgery. Being able to drink at an early stage makes it possible to avoid the use of IV drips and enables you to quickly regain your strength.

**You should aim to be drinking 2 litres of water per day as soon as possible after your operation.**

This may seem like a large amount, however it is easily achievable if you take regular, small sips.

A drip tube attached to a large syringe can be used as a means of drinking. After 1-2 days you should be able to drink out of a glass.

Avoid using straws, as the subpressure created can lead to liquid entering operational wounds and causing infection.

You should purchase a **food mixer**, as this will allow you to prepare and consume any type of food you desire.

In addition to (non-alcoholic) mixed drinks, you can also consume milk, yoghurt, ice cream, fruit juices, soft puddings, homogenized foods and all other fluid or mushy foods.

It is advisable to make your meals as liquid as possible - for example using stock for savoury (salty) dishes and milk or orange juice for sweet dishes.

Balanced dietary supplements such as ENSURE, MERITENE, NUTRODRIP etc. are also useful.

We recommend trying out various menu options prior to surgery so that you know which ones you like.

Your food should be semi fluid for the first 10 days after surgery and very soft (the consistency of scrambled egg or boiled potato) for 6-8 weeks thereafter.

**It is very important that you do not chew until operated bones have knitted into place (around two months after surgery). Until then you should only eat dishes which do not have to be chewed into smaller pieces:**

Boiled rice and boiled, small noodles, soups, dumplings, boiled fish, boiled ham (mashed on your plate using your fork), boiled vegetables (chopped into small pieces or shredded), scrambled egg and anything else you can eat without chewing.

**AVOID TOUGH OR HARD FOODS** such as cutlets, bread, pizza, "al dente" pasta, raw vegetables and fruit.

The eating difficulties you may initially have are generally caused by wounds in the mouth, the weakness of the masticatory muscle (severed during the operation), throat ache (caused by the anaesthetic tube), cheek swelling and changes to the feeling of your tongue and mouth. We nevertheless explicitly advise you to make a concerted effort to begin eating as early as possible after your operation, as this will accelerate both the remedy of any complaints it brings with it and your return to a happy, healthy life.

**You should keep to a full diet including meat protein, calcium and vitamins.**

## **9. Swelling (oedema).**

You should be aware that surgery will cause considerable facial swelling.

It is difficult to predict how severe the swelling will be, as susceptibility to swelling varies from patient to patient.

The swelling will gradually increase for 2-3 days and slowly begin to go down at the beginning of the second week. After 15-20 days your appearance will have more or less returned to normal.

Most swelling disappears completely within 4-6 weeks.

A number of measures can be used to minimize the occurrence of oedema and accelerate the disappearance of post-op swelling:

1. Facial ice packs for 24 hours after the operation.
2. Taking cortisone-based medication before and after the operation.
3. Keeping your head in a constantly raised position during the first week after the operation (3 pillows under your head).
4. Staying upright as much as possible and walking around.
5. Avoiding too much speaking and stress during the first 10-15 days after the operation.
6. Taking the medication prescribed to you.

Whereas oedema around the lower jaw will disappear within 6-8 weeks, slight cheek swelling may remain for a number of months.

## **10. Haematoma**

Haematoma may occur within 3-5 days after surgery and will disappear completely within 15-20 days. They often extend gradually towards the throat and chest (which adopt a yellow hue) before disappearing completely.

## **11. Secondary bleeding.**

Nosebleeds and bleeding in the mouth are normal after surgery.

Secondary bleeding may continue to occur for a few days (or a few weeks in the case of nosebleeds). In order to avoid bleeding and infections in the oral cavity, it is recommended that you do not blow your nose for at least four weeks after the operation.

Consult your doctor if bleeding is heavy and the blood that appears is of a vivid red colour.

**AVOID TAKING ASPIRIN AND SIMILAR BLOOD-THINNING MEDICATION FOR AT LEAST 3 WEEKS AFTER THE OPERATION (THEY MAY CAUSE BLEEDING).**

## **12. Ability to speak**

It is extremely difficult to predict how your ability to speak will be impaired during the post-op period and whether or not your words will be comprehensible. Ability to adapt to the situation varies from patient to patient.

If you try to speak and adapt to your new situation straight away you will quickly regain your ability to speak.

Try to concentrate on each individual word, speak slowly and practice regularly.

The majority of patients are able to speak comprehensibly within 24 hours of surgery.

Within a few days you will be able to speak normally.

## **13. Post-op pain**

Pain after surgery is normal, particularly as bone-related operations are similar to bone fractures. The levels of pain associated with this type of surgery are nevertheless easily managed using painkillers.

Painkillers can be taken orally or injected.

Painkillers to be taken orally:

1. AULIN sachets (powder).
2. ORUDIS 50 mg capsules (active substance: ketoprofen): 1 capsule every 8 hours.
3. COEFFERALGAN effervescent tablets: 1 tablet dissolved in water every 8 hours.
4. NOVALGIN drops (active substance: novaminsulfon): 20 drops 3 times a day.

These painkillers are to be taken 15 minutes after drinking a sufficient amount of fluid.

Painkillers can be injected if you are having difficulty swallowing:

1. VOLTAREN ampoule (single dose)
2. ORUDIS ampoule (single dose)
3. CONTRAMAL ampoule (single dose)
4. LIXYDOL ampoule (single dose)

Post-op pain mainly affects the face and throat. Whereas facial pain is relatively mild, throat inflammation lasts around 3 days. It subsides more quickly if the patient begins to drink at an early stage (the liquid rinses the mucous membranes in the throat).

## **14. Nasal congestion**

The feeling of having a congested nose arises as a result of the insertion of the anaesthetic tube through the nose and surgery to the jaws, which also has an effect on the nasal septum and nasal cavities. The nose becomes congested due to oedema in mucous membranes and blood coagulation in the nasal cavities. These issues can be dealt with using vasoconstrictive, anti-inflammatory nasal sprays (NEOSINEFRINE, N.T.R., RINAZINA or similar) and careful cleaning using cotton buds soaked in diluted hydrogen peroxide.

Sprays have a greater effect if used when lying down. You should be able to taste the medicine in your throat. If used correctly, the spray will bring about an improvement within just 5 minutes.

You must avoid excessive and/or long-term use (do not exceed 3-4 applications over a maximum period of 4-5 days).

Nasal congestion generally disappears within 1-2 weeks.

## **15. Fever**

Patient body temperature often goes up during the week after the operation. A body temperature of up to 38°C is not problematic, and in contrast shows that your body is reacting healthily to the trauma of the operation. It is therefore not necessary to take any antipyretic medicine. If, however, your temperature rises above 38°C, you should consult your doctor and take TACHIPIRINA (active substance: paracetamol).

## **16. Medication**

Your inpatient treatment will be supported by the use of various substances including antibiotics, painkillers, anti-inflammatories (for nasal mucous membranes) and lip creams.

Once at home you will continue to take antibiotics and painkillers as instructed by your doctor.

### **ANTIBIOTICS:**

VECLAM Suspension (taken orally) or CEPOREX (film-coated tablets) or AUGMENTIN (powder in sachets): 2 times a day.

Alternative: ZARIVIZ ampoules (1 g to be injected intramuscularly 2 times a day).

Other medication is only to be taken where necessary.

### **ANALGESICS (PAINKILLERS):**

See section 13 for information on painkilling medication and section 14 for information on anti-inflammatories for the nose.

One cutting-edge product is particularly recommended: AZUMA-4 CRONO, which includes four active substances effective against pain, inflammation and oedema.

### **ANTI-EDEMA MEDICATION (ANTI-INFLAMMATORIES):**

In order to accelerate the remedy of oedema you can take herbal medicines such as **arnica (ARNICA montana) 3 times a day for a few weeks after discharge** or medication such as ANANASE film-coated tablets (Bromelain / 2 x 3 times a day), DANZEN film-coated tablets (2 x 3 times a day). Once you have fully recovered you can also take a diuretic (e.g. LASIX, one tablet a day for 3 days).

You can accelerate your recovery by taking multi-vitamin complexes (e.g. IDROPULIVIT, 20 drops a day) and minerals (e.g. POLASE, 1 sachet a day).

Of the many balanced diet products on offer, **FLOGICOSS** is a particularly good choice as it has painkilling properties and is effective against oedema. It also promotes tissue perfusion.

**ANTI-INFLAMMATORY FOR THE NOSE: RINAZINA SPRAY 3 times a day.**



## **TO PROMOTE BONE FORMATION:**

**CALCIUM CARBONATE D3** (calcium carbonate + vitamin D3): 1 sachet (effervescent powder) a day

**OSTEOSIL Calcium:** 3 tablets a day.

I also recommend that you apply cocoa butter or hydrating creams to your lips.

## **17. DENTAL HYGIENE**

You must keep to a fluids-only diet during the first week after the operation. During this period you should double-rinse your mouth after each meal - first with plenty of water (perhaps with a little dissolved bicarbonate of soda or table salt), then with a mouthwash such as **JODOSAN Clorexidina**, **ORASEPTIC**, **DENTOSAN** or **CORSODYL**.

From the third day after surgery you can begin to use diluted hydrogen peroxide (1 part hydrogen peroxide, 2 parts water).

From the fourth day after surgery you can begin to clean your teeth with a toothbrush. Buy yourself a toothbrush with a very small head and very soft bristles (children's toothbrushes are particularly suitable). When brushing your teeth, be sure to only clean your teeth and not bring the brush into contact with the gums (this might lead to the re-opening of surgical incisions). After 2 weeks this precautionary measure will no longer be necessary.

Continue to rinse your mouth with the mouthwashes recommended above.

Do not use a dental water jet (e.g. **WATER PIC**, **BROXO JET**, etc.) during the first 15 days after surgery. When you begin to use one again, be sure to set it to the lowest setting and avoid directing it towards operated areas of your mouth.

During the initial period after the operation the pressure of the water jet has the potential to re-open surgical incisions.

The auto-dissolving surgical suture used dissolves in your saliva within 15-20 days and therefore does not need to be removed.

## **18. Discharge from the clinic**

Most patients can be discharged during the morning after their surgery. Patients who respond less quickly and positively to surgery remain in inpatient care for 36-48 hours, and can be sent home as soon as they have recovered sufficiently.

Discharged patients can go for check-ups at the clinic or at Dr. Raffaini's practice in PARMA (Tuesdays and Fridays, tel. +39 0521 035111), in Milan (Mondays, tel. +39 02 76002077) or in FLORENCE (Wednesdays, tel. +39 055 240247). Alternatively, they can continue to receive treatment as agreed with the surgeon. Check-up appointments can be arranged with the assistant (Adriano) or nurse (Elisa).

Once at home, the patient must:

1. HAVE PLENTY TO EAT AND DRINK
2. BREATHE DEEPLY (train yourself to breathe deeply 15-20 TIMES AN HOUR)
3. WALK AROUND AND STAND AS MUCH AS POSSIBLE
4. AIM TO RETURN TO NORMAL BOWEL AND BLADDER FUNCTION (pass stools and urinate)
5. CAREFULLY RINSE THEIR MOUTH (during the first few days) and gradually return to normal TOOTHBRUSHING.

**X-rays** will be taken during the days after the operation and as part of check-ups.

In rare cases (less than 1%) it is necessary to correct the new jaw position during the first few days after the operation. This corrective surgery is generally carried out using a local anaesthetic and only requires a return to the operating theatre in exceptional cases.

## 19. Weight loss

You may lose around 3-5 kilos further to surgery. This weight loss is generally brought about by loss of appetite and other complaints.

Do not worry: The lack of appetite of the first week will disappear, and by the beginning of the second week your appetite will gradually begin to grow - allowing you to return to your normal weight.

## 20. Post-op sleep and depression

You should sleep with a raised head (2 or 3 pillows is sufficient) for as long as your face is swollen. From the second week onwards you will also be able to sleep on your side (the side you sleep on may be swollen when you wake up).

Some patients have **disturbed sleep** during the first week after their operation. Do not worry if this happens to you: Any problems you have will disappear without intervention as your swelling and other complaints subside. Try to lie down and get some sleep if you become tired during the day, and take a painkiller before going to sleep at night. A mild anxiolytic can also be helpful (LEXOTAN drops or other benzodiazepines).

It is not unusual for you to have feelings of depression during the post-op phase. This depression is caused by the anaesthetics used, the swelling and heavy feeling in your face (which may make you feel uncertain about the outcome of operation) and difficulties speaking, swallowing and breathing. It will quickly disappear once you begin to regain your normal functions and return to a healthy diet.

## **21. Exercise**

Start to walk around as soon as you can, and keep your head raised for as long and as often as possible. You may feel dizzy or even collapse when you get up or sit up from a recumbent position. In order to avoid this, **SIT UP SLOWLY** and stay seated for a few minutes before you stand up.

Avoid all exertion, intensive physical activity and sport for 8 weeks after surgery - failure to observe this may bring about the mobilization of operated bone sections.

You will be able to **take a bath or shower** as early as 3-4 days after surgery. You should arrange for a family member to assist you, as you may collapse due to a drop in blood pressure.

## **22. Doctor's appointments and check-ups**

**Post-op check-ups are very important.**

The first check-up generally takes place around a week after surgery, with check-ups then continuing on a weekly basis during the first month. X-rays will generally be taken on the occasion of these check-ups.

If you live a considerable distance away from the clinic you can arrange to have some of your final check-ups carried out by your orthodontist.

Your ability to chew and normal lower jaw mobility will only return on a gradual basis. The quickest way to regain them is to follow the instructions and carry out the exercises given to you by the surgeon.

The position, quantity and tension of your rubber bands will be adjusted during your check-ups. You will also be shown how to best support the healing and recovery processes. Please use check-ups to pose any questions you may have.

The surgeon will remain in contact with your orthodontist. After around 6-8 weeks the orthodontist will resume their work in order to fine-tune your bite.

Unless another agreement is made, tests will take place in the FACE Surgery (tel. +39 0521 035111) or in the clinic (tel. +39 02 76002077).

### **23. Changes in feeling and mobility**

An osteotomy of the upper and lower jaw always brings about a degree of change to the feeling of the lips, chin, gums and palate, cheeks and tongue, as it subjects the sensory nerves which pass through severed bones and cut mucous membranes to trauma.

Neurological sensations in the oral cavity and surrounding areas may become confused or unusual (touch experienced as cold, warm or cold as pain, tingling, etc.).

Any such neurological issues will generally disappear within 2-8 months. Normal sensory perception will first return to the upper lip, but will take longer to return to the lower lip, jaws and tongue. In some cases a full return to normal sensory perception - and in the chin and lower lip in particular - may take up to a year or longer.

In rare cases (3-5%) small areas of the corners of the mouth, lower lip, chin and palate may remain affected by permanent hypoesthesia/anaesthesia. As healthy patients are often unaware of being affected, it is often only possible to identify this complaint surgically.

Facial expression may also change temporarily, but will normalize after around 2 months.

## **24. Opening the mouth and moving the lower jaw**

Patients will only be able to open their mouths to a limited extent during the post-op period. This situation will only normalize after a certain time, with the actual period required dictated by the type of surgery carried out. Surgery to the lower jaw brings a longer normalization period with it. In any case, you will be able to move your jaw normally within 5-8 weeks.

During the first 2 months after surgery you may experience pain in joints with your lower jaw and the sensation that your ears are blocked or ringing. These concomitants are linked to the healing phase and are generally down to the rubber bands. Please consult your surgeon if your ability to open your jaw is still impaired or you continue to experience joint pain 2 months after surgery.

A physiotherapist can be called in if your jaw mobility is still restricted 20-25 days after surgery (**Dr. Ruggero Strobbe: Physio-Motion, Parma, tel. +39 0521/038251**).

## **25. Removing bone from the pelvis**

In cases where additional bone material is required it is possible to source that material from a bone bank or by means of an autologous removal. In the case of an autologous removal, the bone is taken from the patient's iliac crest in order to ensure that the material will graft well onto the facial bones.

The bone is removed using a special technique which avoids both injury to the body and unpleasant side effects. The only exception is a barely visibly 3-4 cm scar similar to that left by an appendix operation. The scar is hidden by normal-sized underwear.

As the surgical technique used to remove the bone material does not involve separating muscle from bone you will be able to move about normally during the days after the operation.

You should nevertheless refrain from intensive or repetitive physical activities (heavy lifting, climbing lots of steps, gymnastic exercise, cycling, jogging) for 3-4 weeks.

## **25. Removing bone from the cranium**

It has recently become common to take bone material from the patient's parietal bone in cases where resistant material which grafts well onto the facial skeleton is required but the complaints associated with taking bone from the iliac crest are to be avoided.

The removal process does not necessitate cutting the patient's hair. The incision is 5 cm long and bone is only taken from the outer layer of the cranium. It is replaced with bone-like cement which turns into bone after two years and prevents the formation of cranial defects.

The wound is sealed using metal staples which enable you to wash your hair normally as early as the day after the operation. The staples are removed after 15 days.

## **26. Emergencies**

In the case of any urgent problems or emergencies during inpatient treatment or home-based convalescence you can contact either the FACE Surgery (+39 0521 035111) or the doctor or their assistant using the following numbers: +39 348 2685866, +39 339 8704641.

## **27. Bone-fixing screws and mini-plates**

Titanium screws and mini-plates are used to fix bone sections severed and repositioned during the osteotomy process into place. Titanium is a fully bio-compatible material.

These osteosynthetic components can be removed a few months after surgery once bones have regained their integral strength.

In some cases it is necessary to remove mini-plates because they are causing inflammation. The removal process is carried out on an outpatient basis, with the patient given a local anaesthetic.

## **28. Financial considerations**

You are generally requested to make a down payment of 1,000 Euros once the date of your surgery has been confirmed. The payment is required for the purposes of preventative cost coverage related to surgical planning, registration of the operation and inpatient care at the hospital, dental technicians and fixing material.

You will be invoiced for inpatient care, use of the operating theatre, the services of the anaesthetist, surgical material and surgical assistance upon being discharged from the clinic.

The surgeon's fee is to be paid for on the date of the first check-up unless otherwise agreed.

Every aspect of the operation will be optimized for you in terms of tolerance, patient friendliness and cost.

We will provide you with all documentation required for an application for reimbursement from your health insurance provider.