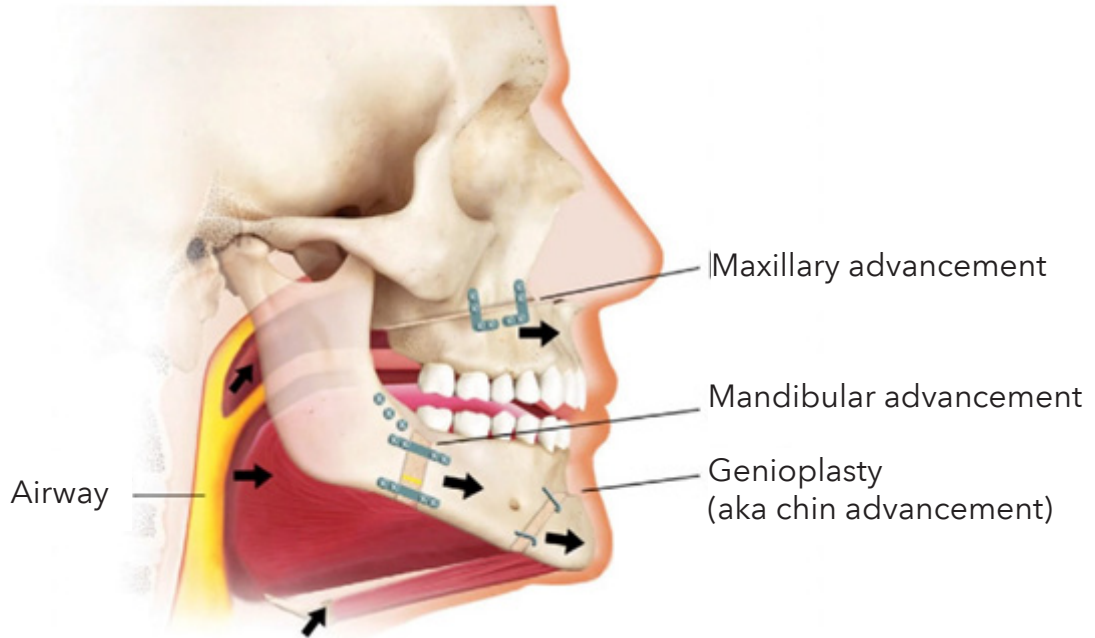


MMA (Maxillomandibular Advancement) for OSA

MMA surgery is a surgical intervention designed to help treat severe obstructive sleep apnea. This typically involves moving the upper and lower jaws (including chin) forward, on average, about 1 cm. This allows for a 3D increase in posterior airway space by moving the tongue base and soft palate forward.



Other treatment options for OSA:

- Weight loss
- Positional therapy (ie sleeping on side or in upright position)
- Oral positioning device to pull lower jaw forward
- CPAP
- Other surgical options provided by Head and Neck Surgery: nose surgeries to improve airflow, palate surgery (ie UPPP), tonsillectomy, Inspire (hypoglossal nerve stimulator), tracheostomy

We have a multidisciplinary OSA clinic with providers from Head and Neck Surgery, Maxillofacial Surgery, and Sleep Medicine. This commonly involves a procedure called DISE (drug induced sleep endoscopy) to evaluate your airway while sedated to identify your specific areas of obstruction and aid in determining the most appropriate treatment plan for you. We recommend you attend this clinic before undergoing MMA.

Success Rate for Treating OSA

Of the surgeries performed for the treatment of OSA, MMA has been found to be one of the most successful at treating this condition with success rates reported at ~90%. The current literature defines success as lowering a patient's AHI (how many times there is an obstruction per hour) in half but does not necessarily mean the OSA is cured. The cure rate for MMA is ~30%. This means that for many patients, there may still be a need for CPAP, mandibular positioning device or a secondary surgical treatment in the future. There is a chance that you will have no improvement in your OSA following this surgery. Tracheostomy is the only surgical procedure that has a cure rate of 100% for OSA.

Surgery

The surgery is done in the operating room with the patient asleep under general anesthesia. The surgery lasts, on average, between 4 to 6 hours. Patients will be kept overnight in the hospital and are typically discharged home the following morning. Most of the incisions for this surgery are made on the inside of the mouth, however, small incisions are often made through the skin in your cheek regions as well (these are small and typically only require a single stitch to close).

Facial Appearance

Changes to facial appearance: moving the jaw bones forward such significant amounts has a significant effect to facial appearance. There is no predictive software that is able to give an accurate prediction of what your resulting appearance would be, thus, we do not use/give any such predictions. Generally speaking, forward movement of your upper jaw will result in more prominence of your front teeth/upper lip, widening and upturning of your nose, and more tooth/gum show when you smile. Moving your lower jaw forward will result in your chin coming forward; you can estimate this by posturing your lower jaw forward. The majority of patients find these changes to facial appearance to be either neutral or favorable, but ~30% of people find such changes to be unfavorable.

Numbness

Most patients experience numbness in the respective jaw (including gums, teeth, overlying skin, and lip) following surgery. This numbness can take a long time (more than 1 year) to resolve and may result in permanent changes to feeling. The chin/lower lip region has the highest risk of a permanent change. Many patients with permanent change to sensation report it to be an area with decreased sensation/tingling, but a more profound numbness or altered sensation in a different manner is possible. Young, healthy patients have the best chance of a good return of sensation. Advanced age is associated with increased risk of worse nerve healing/less return of sensation. It is also possible to have altered sensation result in the tongue and/or palate.

Orthodontics

It is recommended (but not required) that you get braces when undergoing this surgery. The braces are used during surgery to wire your teeth together into the desired bites when repositioning your jaw bones and are used in the immediate post-op period to support the elastics (rubber bands) used to guide your bite as you heal. They would also allow for correction and fine tuning of your bite following surgery to optimize your occlusion.

If you elect against braces, we can place surgical hooks, called arch bars, at the time of surgery. Arch bars are held in place with wires that wrap around your teeth at the gum level. These can be used to

wire your teeth together and support the elastics/ rubber bands during your post-op recovery but would not allow for any corrections to be made to your bite. Orthodontic treatment is a dental benefit and is not included in the health plan.

Diet

Following surgery, your teeth will be held together with rubber bands (most commonly) or with wires and you will be on a liquid diet for the first 2 weeks. A 5 to 10 pound weight loss is common during these first 2 weeks. It is important to maintain your hydration and nutrition as much as is possible. Pureed diet instructions (including a recipe book) will be provided at the pre-op class with our clinic nurse. You will remain on a modified, no chew diet until 6 weeks post-op. After 6 weeks, you may resume chewing and return to a normal diet as your comfort allows.

Medications

Medications will be prescribed to you in liquid form. If you take any medications in a pill form, many pills can be crushed and taken with a liquid (water/milk/juice). Please discuss with your primary care physician or a pharmacist if your pills can be crushed or if you need a substitute medication.

Speech

You will be able to speak following surgery, even with your teeth held together with rubber bands/ wires. It is advised that you speak and animate your lips often (instead of just writing down everything) to aid in reducing muscle stiffness and reducing swelling.

Swelling and Bruising

Swelling (and often bruising) following corrective jaw surgery is expected and typically peaks around 3 to 5 days post-op. It will take several months to fully resolve, although the majority of swelling will subside by 1 month post-op. Applying ice regularly in the first week following surgery is helpful in reducing swelling as is keeping your head elevated. You can sleep with at least two pillows or in a recliner chair to keep your head elevated. You will be provided with ice packs.

Changes in Bite

Many patients undergoing MMA experience a change to their bite following surgery. It is recommended that you do this surgery in coordination with orthodontics (braces) to optimize your occlusion/bite following surgery.

Difficulty Swallowing

Moving the upper and lower jaws forward can, on occasion, lead to difficulty swallowing. If this happens it is typically temporary and resolves with time and retraining of your muscles. Rarely, patients may need a feeding tube temporarily placed.

Damage to Teeth

There is a risk of damage to your teeth with this surgery. If such damage occurs, you may need a root canal and/or extraction of the affected tooth/teeth. Damage to teeth can result from direct trauma from being cut during surgery or indirectly from diminished blood supply to the tooth/teeth related to nearby bony cuts/incisions.

Possible Need for Revision

Although not common, you may require revision surgery. This could involve removing and/or replacing the hardware, bone grafting, and/or repositioning of your jaw.

Physical Activity

It is encouraged that you get up and walk around often during your recovery. Please avoid activities that bring your head below your waist level for the first several weeks. Please limit your physical activity level to no more than walking and light hiking for the first 6 weeks. Physical activities requiring heavy lifting (anything that is strenuous enough to cause you to clench your teeth) or activities where the jaws would have a tendency to be hit or jarred, such as contact sports, should be avoided for 3 months. Examples of exercises that are non-jarring/non-contact: stationary bike, elliptical, stair climber. You can resume ALL physical activity including contact sports after 3 months.

Coverage

MMA is an approved surgery under your health plan. For specifics regarding your copay, please contact Member Services (number is on your Kaiser Permanente ID card) and they will tell you what your copay for outpatient surgery is. Orthodontic treatment is a dental benefit and is not included in the health plan. You will also need pre and post-op imaging (cone beam CT); you can inquire about your radiology copay with Member Services as well.

Time Off Work

Following surgery it is important to allow your body time to rest and heal. It is recommended that you plan a minimum of 2 weeks off. Many people find having 4 to 6 weeks off to be more optimal. You will not be able to perform any strenuous physical activities for 3 months following surgery; if your job requires strenuous physical activity please let us know so that we can generate a work note for you that lists modified duty requirements. Many patients file for disability during this time; if you need any forms for disability/FMLA/work filled out, please contact the Medical Secretaries Department:

Oakland Medical Secretaries Department
3701 Broadway, 5th Floor
510-752-6026

ALL forms for disability/FMLA/work are filled out by the Medical Secretaries Department.