

# SHAPING UP YOUR FACE

**H**ave you ever tried to get in shape? If so, then you know that eating right and exercising regularly gives you a body that performs well and looks good. You may have help from a trainer or an instructor, but *you* have to work at it. Orthognathic surgery is the same way. You want to be able to chew well and look your best, and your orthodontist and surgeon can team up to help you achieve this goal. But to get results, *you* have to make a commitment. The word "orthognathic" comes from the Greek words *orthos*, meaning straight, and *gnathos*, meaning jaws. Orthognathic surgery shapes up your face by straightening your teeth with orthodontics and repositioning your jaws with corrective jaw surgery.

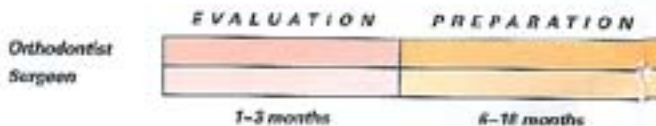


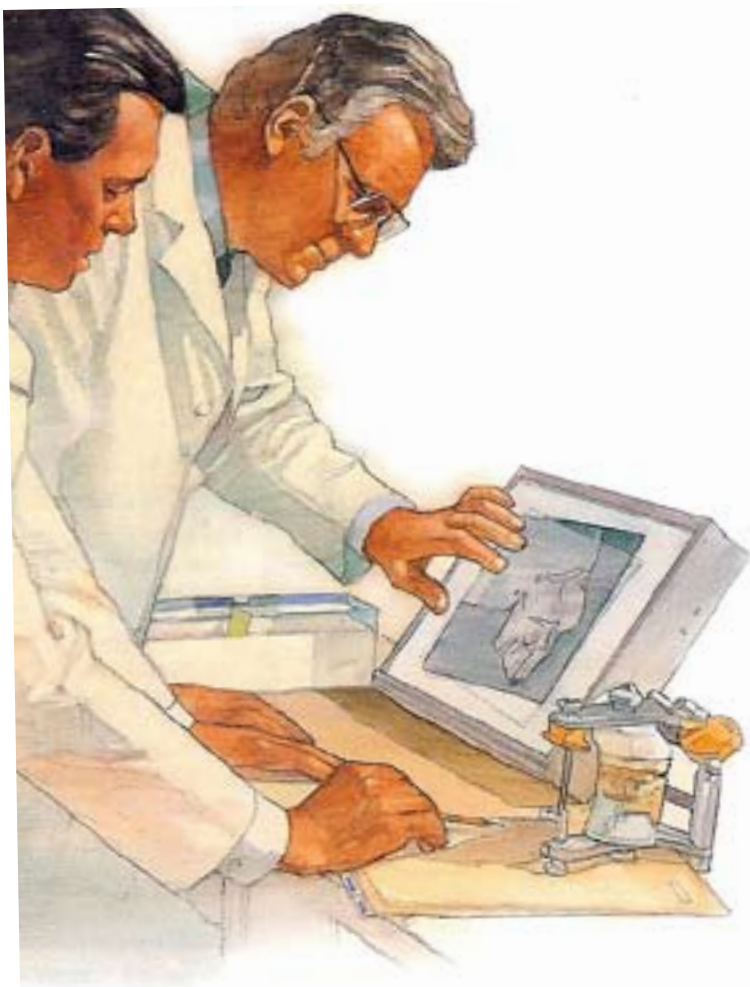
## When Jaws and Teeth Don't Fit

If your jaws don't meet correctly and your teeth don't seem to "fit" with your jaws, you might have a bite problem. This may make it difficult to eat or to speak certain sounds clearly. Your face may appear "off balance," and you may not be happy with the way you look. Your bones and teeth may have grown that way, or your face may have been injured. Whatever the reason, your teeth and facial bones can be repositioned to create a more balanced appearance with jaws that work together well.

### This Change Takes Time

*Your total treatment time may take two years or more. In this time chart, both doctors are represented by the same color during each phase. The brighter the color, the more often you'll visit your orthodontist or your surgeon during that phase.*





## It's Time for a Change

Your orthognathic team consists of an **orthodontist** (dentist who specializes in straightening teeth) and a **surgeon** specially trained in jaw surgery. First, your orthodontist uses braces to move your teeth into the correct position for the bite you'll have after surgery. Then your surgeon reshapes your jaw and perhaps other facial bones to give you a better bite and a more pleasing appearance.

### Are You Ready for Orthognathic Surgery?

Think about the questions below. They can be a good starting point for discussing orthognathic surgery with your orthodontist and surgeon.

#### Chewing and Speaking

- ◆ Do you have problems biting or chewing?
- ◆ Do your lower teeth hit the roof of your mouth when you eat?
- ◆ Have you noticed wear on your teeth?
- ◆ Do you have problems pronouncing certain words or sounds clearly?

#### Your Appearance

- ◆ Do you like the way you look from the front?
- ◆ Do you like your profile?

#### Your Commitment

- ◆ Do you understand your reasons for wanting to change your face and bite?
- ◆ Are you aware that the total treatment time may last two years or more?
- ◆ Would this commitment interfere with your life now?

**SURGERY**

**RECUPERATION**

**AFTERCARE**



1-6 hours

6-12 months

Ongoing



## THE FRAMEWORK OF YOUR FACE

Just as bones give shape to your whole body, bones also form the "framework" of your face. The size and position of facial bones and the teeth in them determine how well you bite and how you look. If any of these bones are shaped incorrectly, problems in your jaws, teeth, or appearance can result.

### Facial Anatomy

The bones in a healthy jaw are a "matched set." If they come together evenly when you chew, you have a normal bite. If the relationship between your forehead, nose, lips, and chin is a pleasing one, you have a proportional appearance.

*Your upper jaw bone, or maxilla, holds your upper teeth and supports your upper lip and the base of your nose.*

*The temporomandibular joint (TMJ) moves up, down, forward, backward, and side to side, so you can talk, chew, sing, and yawn.*

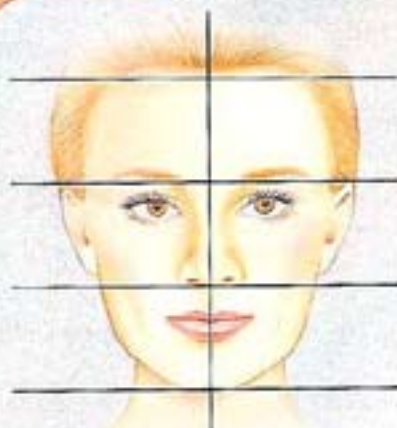
*Your lower jaw bone, or mandible, holds your lower teeth and forms your lower face. It's the only moving bone in your face.*

*Your teeth, covered with hard enamel so you can chew food, are secured in your bones with strong fibers.*

*You have a proportional profile if the position of your forehead, nose, lips, and chin complements your overall appearance. The size and shape of your facial bones and the skin that covers them determine your profile.*

*You have a normal bite if all of your upper teeth and lower teeth are aligned correctly and bite together evenly. Your front upper teeth should overlap your front lower teeth slightly.*

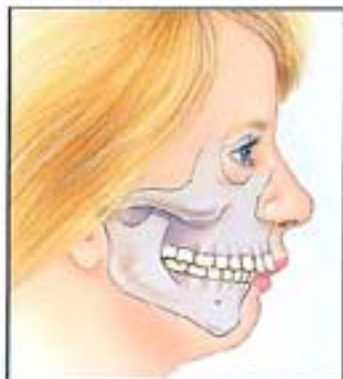
*A well-proportioned face is divided into equal thirds from the hairline to the eyebrows, the eyebrows to the base of the nose, and the base of the nose to the chin. If your face is divided down the middle, each side should closely resemble the other.*



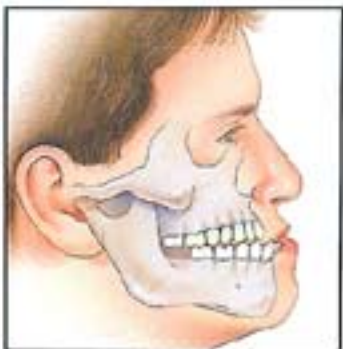
## A Facial Imbalance

If your jaws and face are out of proportion, you may have problems chewing or speaking certain sounds clearly. You may even be uncomfortable with your appearance. Incorrectly shaped bones are usually caused by uneven development of your jaws early in the growth years or may be caused by an injury to the face. You may have one or a combination of these facial imbalances.

### Lower jaw

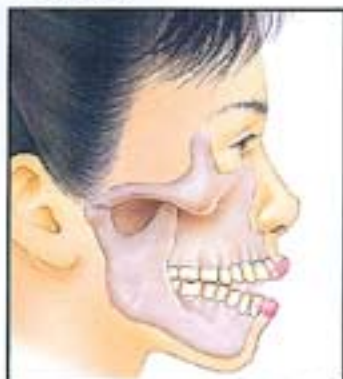


A **small lower jaw** (underdeveloped lower jaw) may cause bite problems, such as not being able to bite into food. Or, it may cause your chin to look recessed. Your upper teeth may jut out in front of or overlap your lower teeth.



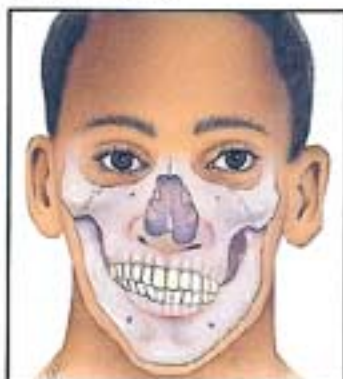
If you have a **big lower jaw** (overdeveloped lower jaw), chewing may be difficult, and your chin may appear too far forward. Your lower teeth may jut out in front of or overlap your upper teeth.

### Upper jaw



If you have a **long upper jaw** (overdeveloped upper jaw), you may have a "gummy smile" or some of your teeth may not meet, making chewing difficult. If you have a **small upper jaw** (underdeveloped upper jaw), your upper lip may look sunken in and your upper teeth may look recessed. You may have difficulty biting into food. You have an **open bite** if most or all of your teeth don't meet, making it difficult to bite or chew food. You may not be able to close your lips without straining.

### Uneven jaws



If your jaws are overdeveloped on one side or underdeveloped on the other, you have an **uneven jaw** or **facial asymmetry**. Your face may appear "off center." Your upper or lower teeth may have shifted over to one side, which can make biting and chewing awkward. The bones around your eyes may also be shaped incorrectly.



## EVALUATING YOUR BITE AND JAWS

Starting orthognathic surgery is like starting an exercise program: a physical exam helps assess your health so you can find out what it will take to reach your goal. Your orthodontist and surgeon work together to evaluate where your teeth and bones are and how far they should be moved. Because of the detailed, collaborative nature of this phase, your evaluation may take up to three months.

### Your Orthodontist's Role

Your orthodontist studies the position of your teeth and determines how braces will prepare your bite for surgery.

**Your history** will be taken to determine the health of your teeth, gums, and bone structure. You may be asked about any symptoms of jaw problems or previous dental work.

**An exam** indicates the position of your teeth. You'll be asked to open and close your mouth to test how your jaws and teeth work together.

**Records** document where your teeth are before braces are put on. As your teeth shift, additional records are taken to help plan treatment. Some common records taken are x-rays of your entire skull (**cephalometric x-rays**) and your whole mouth (**panoramic x-rays**). Casts that reproduce your teeth and jaws and initial ("baseline") photographs are also taken.



*Cephalometric x-rays help your orthodontist decide how much your teeth should be moved.*

### Your Surgeon's Role

Your surgeon studies your jaws to learn how the imbalance affects your bite. He or she also determines how the bones may be repositioned to improve the function of your jaw.

**Your history** is taken to find out why you need orthognathic surgery. You will be asked about your health and any prior surgeries. Be sure to mention any plans for future dental or facial cosmetic work.

**An exam** is performed to assess the health and proportions of your entire head and neck, and your nose, eyes, ears, upper and lower jaws, bite, TMJ, and mouth.

**Additional records**, such as x-rays or photographs, may be necessary after your surgeon reviews the information about your teeth from your orthodontist.



*Your proportions are assessed as your surgeon measures and studies your face from different angles.*

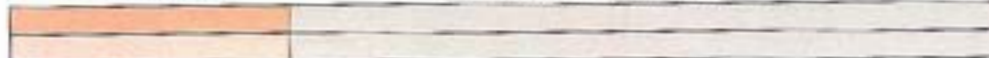
#### EVALUATION

Orthodontist  
Surgeon



1-3 months

#### PREPARATION/BRACES ON



6-12 months



*A cast allows your orthodontist to compare the original position of your teeth to casts made later during treatment.*



#### **Your Treatment Plan**

When your orthodontist and surgeon complete their evaluations, they may prepare a treatment plan in one of several ways. They may sketch your new profile on paper or trace your new profile from x-rays onto plastic film. Or, they may create a computer image of how you might look after surgery. Once they've discussed your treatment plan with you, take time to weigh the benefits and risks of surgery. Then make your decision. Before making your commitment, remember that braces move your teeth for the bite you'll have *after* surgery. Changing your mind in the middle of treatment could make your bite worse.



*Your records and your expectations for surgery are reviewed by your surgeon and discussed with you.*

**SURGERY    RECUPERATION/BRACES OFF**

**AFTERCARE**

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1-5 hours

6-12 months

Ongoing



## PREPARING YOU FOR THE CHANGE

Getting ready for surgery is a busy time. First, you will need to visit your general dentist for a cleaning, any treatment for gum disease, and other dental work. Then, you'll have a series of appointments with your orthognathic team. Your orthodontist puts on and adjusts your braces, and your surgeon plans your surgery. This preparation phase may last up to a year and a half or longer.

### Aligning Your Teeth

Your orthodontist's challenge is to use braces to properly position your teeth for the bite you'll have *after* surgery. You may be wearing braces for 6 to 18 months before surgery (and up to a year afterward), depending on the position of your teeth and the type of surgery you're having. During your preparation time, you'll see your orthodontist about once a month for adjustments. As your teeth gradually shift into position and your x-rays and casts are reviewed, your orthodontist may shorten or lengthen the preparation phase. You're ready for surgery when new casts of your upper and lower jaws finally fit together well. Remember: because your orthodontist is positioning your teeth for the bite you'll have *after* surgery, it may seem like your braces are making your bite worse than it was before.



*Braces straighten your teeth and move them into position for the bite you'll have after surgery.*

### Checking Your Progress

At first, your surgeon may want to see you every couple of months to plan surgery and check your progress. As surgery nears, your visits may increase. Several weeks before surgery, your surgeon may perform one or more "simulated" or "mock" surgeries on casts of your teeth to plan each detail. If the braces move your teeth differently than expected, your surgeon may alter or delay surgery until you're ready. Once surgery is scheduled, your surgeon will discuss what type of surgery you will have and whether you may need a bone graft from another part of your body to build up a part of your jaw that is too small.



*Your progress will be checked periodically as your teeth are moved with braces.*

EVALUATION

PREPARATION/BRACES ON

Orthodontist  
Surgeon

1-2 months

6-18 months



*Several casts of your teeth are made as your teeth shift to see how close you are to being ready for surgery.*



*New photographs are taken so your orthodontist has a record of the movement of your teeth.*



*Simulated surgery on a cast and computer imaging help your surgeon determine the precise amount of bone movement needed.*

### **Keep Your "Chin Up"**

Though you wear braces a long time, they're vital to the success of your treatment. Take time to ask your surgeon any questions you may have. Also, get the support you need from your family and friends. As your surgery date nears, your surgeon may recommend "non-chew" recipes. This lets you experiment and stock up on the foods you'll need after surgery.

**SURGERY    RECUPERATION/BRACES OFF**

**AFTERCARE**

1-5 hours

6-12 months

Ongoing



## YOUR SURGICAL EXPERIENCE

When your orthognathic team feels your teeth have moved into the correct position, surgery is scheduled. Your surgeon will give you instructions to follow before surgery. During surgery, your bones will be repositioned. After surgery, your bones usually grow together and heal naturally within a few months.

### Before Surgery

Before surgery, you will have a physical exam to assess your general health. You may also need to have lab tests. Follow your surgeon's instructions on when to stop eating and drinking before your procedure. The surgery may be performed in a doctor's office, an outpatient surgery center, or a hospital. An anesthesiologist or nurse-anesthetist will discuss anesthesia with you. He or she will also answer any questions you have. You will receive IV (intravenous) fluids and medication to prevent dehydration and infection. The medications also help limit swelling and control pain. Just before surgery, you'll receive general anesthesia so you can sleep through the surgery.

### Risks and Complications

As with any surgery, there are some risks and complications. You may experience some pain and swelling in your face and neck, but most of it is usually gone within a couple of weeks. Your face may feel stiff or numb for several months. During healing, there's a risk of infection and of the bones shifting position as they heal. Your surgeon will discuss these and any other risks and complications with you before surgery.

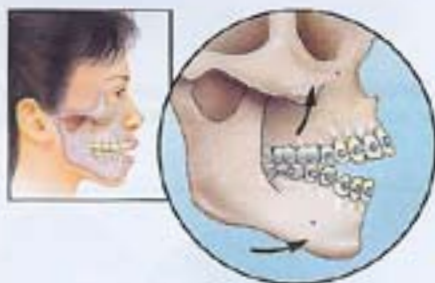
### During Surgery

**For lower jaw surgery,** the lower jaw is either brought forward or moved back. An incision is made inside the mouth. The jaw is sectioned and moved according to your surgeon's plan.



*The lower jaw is separated into several parts.*

**For upper jaw surgery,** your upper jaw is shortened or lengthened. An incision is made inside the mouth so there are no visible scars. For open bite surgery, your jaws are repositioned to allow your mouth to close.



*The upper jaw is separated into two parts.*

**For uneven jaw surgery,** a wedge of bone may be removed from or added to your upper or lower jaw. If other facial bones contribute to the asymmetry, they may be repositioned during this procedure.



*The upper and lower jaws may be separated into several part*

#### EVALUATION

#### PREPARATION/BRACES ON

Orthodontist

Surgeon


1 - 4 months

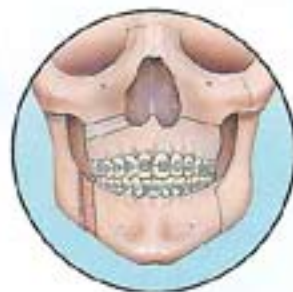
6 - 12 months



The bone is moved forward or backward into its new position.



A wedge of bone is removed or added.



Part of the bone is taken out or added on one side to even up both sides.



### Helping Bones Heal

To aid in healing, your bones are kept from moving with **fixation** appliances. Your surgeon may choose screws, plates, wires, or a combination. A splint may also be used to temporarily secure your bite. Screws and plates are usually not removed.



Screws hold your bones together if they overlap.



Plates hold bones together if they're placed end to end.

**SURGERY**    **RECU PERATION/BRACES OFF**

**AFTERCARE**



## YOUR ROAD TO RECOVERY

Your recovery begins right after surgery, but you may see or feel small changes for up to a year. At first, you may look different because your face is swollen and your jaw has moved, but it won't be long before you see your face take its new shape. You can slowly work up to taking part in your daily activities.

### Healing After Surgery

When you first wake up, you may still feel groggy from the anesthesia. You will notice some swelling and numbness. You will be given pain medication to ease any discomfort. If you have difficulty speaking, using paper and pencil may help. Try to get out of bed as soon as possible. Walk around to increase your circulation, reduce swelling, and speed your recovery. Begin some form of oral hygiene as soon as you can, using a mouthwash, a rinse, or a child's toothbrush. Your oral surgeon will check on you after surgery. You may be able to go home the same day. In some cases, an overnight stay is required.



### Healing at Home

You may be off of work or school for up to two weeks as you recover. Most of the swelling and numbness should be gone after several weeks. But you may still feel a little puffy or numb. Drink lots of fluids to prevent dehydration and help your body heal. Begin a non-chew diet, according to your doctor's recommendations. As you are recovering, you may only notice a subtle change in your appearance. But, if your appearance changes dramatically, expect that your family and friends may be surprised at the difference. Take time to explain that you're the same person, and you need them to help and support you now and throughout your recovery.



EVALUATION

PREPARATION/BRACES ON

Orthodontist  
Surgeon

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## Keeping Your Appointments

Your treatment does not end with surgery. Continued treatment is critical to the success of corrective jaw surgery.

**You'll see your surgeon** usually the first week after surgery. You'll be seen often during the first three months after surgery, and less often for up to a year. Your surgeon monitors your healing, removes your splint, and orders new x-rays to compare to x-rays taken before surgery.

**You'll see your orthodontist** about once a month for six months to a year to make sure your teeth are in correct position for your new, readjusted jaw. Your orthodontist adjusts your braces and makes sure your teeth are moving as planned. After six months to a year, your teeth should be in position and your braces will be removed.



## Becoming Active Again

Depending on the type of surgery you have, you may go back to work or school in about two weeks. You may want to begin with half-days, but you can usually become fully active over a couple of months. Try to avoid injury to your face. Your doctors may recommend that you progress from a liquid diet to soft foods and then to regular foods over several weeks. Your surgeon may recommend a physical therapist to teach you facial exercises that improve your jaws' range of motion. Expect that your friends or coworkers may be surprised about your appearance. Instead of waiting for them to say something, you may want to bring it up first to avoid an uncomfortable situation.

**SURGERY      RECUPERATION/BRACES OFF**

**AFTERCARE**

1-5 hours

6-12 months

Ongoing

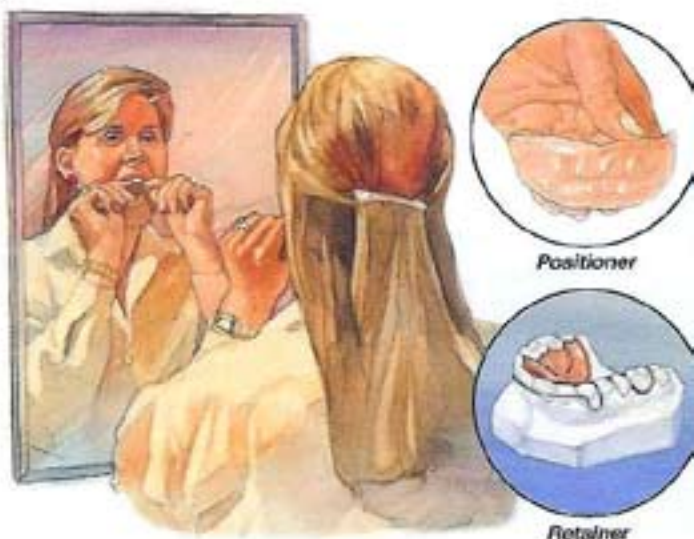


## THE FINISHING TOUCHES

After your braces come off, finishing touches "fine-tune" your bite. Wearing positioners and retainers helps to maintain the position of your teeth. Once your treatment time is completed, you may want to consider having other dental or cosmetic procedures done.

### Stabilizing Your Teeth

To secure your teeth in place, your orthodontist may recommend a positioner or retainer. A **positioner** is a flexible plastic mouthpiece that guides your teeth into their final position and exercises your jaw muscles. A **retainer** is a combination of wire and hard plastic that holds your teeth in place. Your orthodontist will teach you how and when to use a positioner or retainer.

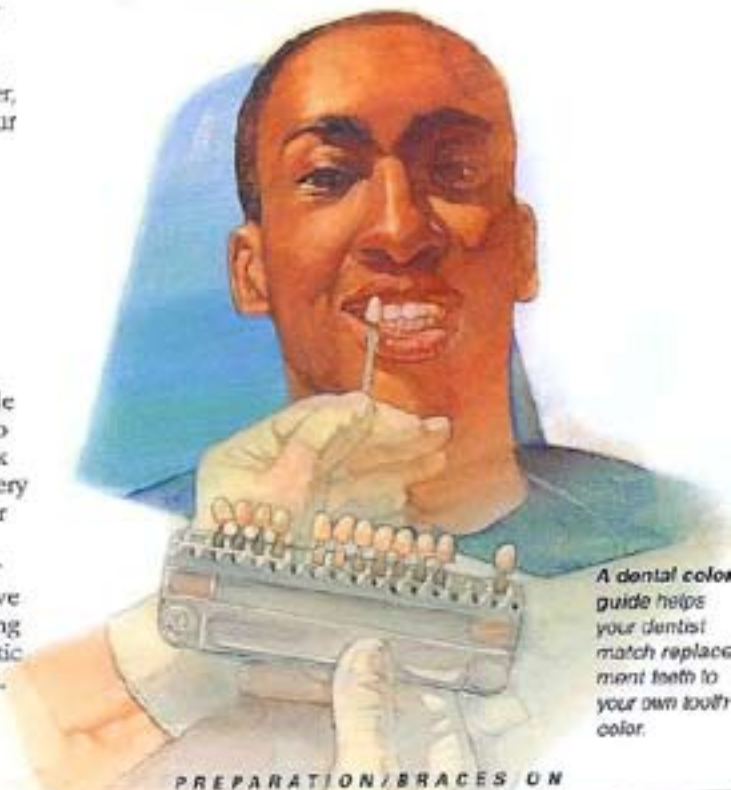


### Other Dental Work

Once your teeth are stabilized in their corrected position, you may want other dental work done. If you want dental work that changes the shape of a tooth or the relationship of one tooth to another, wait until healing is complete so that your bite is not altered. Examples of what you may want to consider are crowns, veneers, bridges, bonding, bleaching, or dental implants.

### Other Surgery

After orthognathic surgery, many people consider having cosmetic procedures to enhance their new look. You may think about having a facelift, or cosmetic surgery on your eyes, nose, chin, or neck. Your surgeon can discuss these with you. Because your jaws are recuperating for up to a year after surgery, you may have subtle changes in your appearance during that time. You may want to delay cosmetic surgery until you've completely healed.



EVALUATION

PREPARATION / BRACES ON

Orthodontist  
Surgeon

1-3 months

6-10 months

## THE "NEW" YOU

When the orthognathic process is finally over, you may feel like a completely new person. You'll be able to bite and chew better, and you may even find you like your appearance more than before. Explore different styles, and find one that's right for the "new" you. After all this time, you've earned it!

### Long-Term Follow-Up

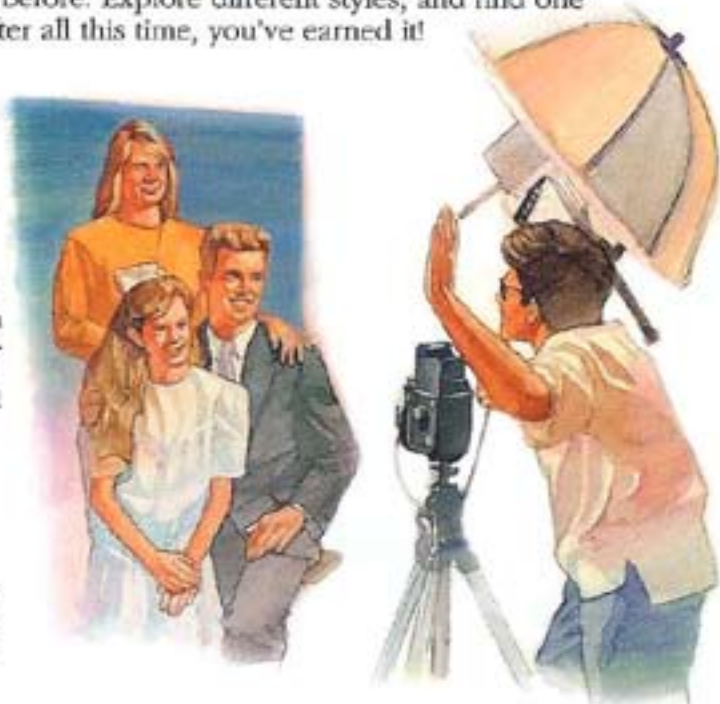
Your orthodontist and surgeon will want to follow up on you periodically to see how you're doing and monitor any changes. Because many of these bone changes are "hidden" in your facial anatomy, only your doctors can tell when you are fully healed. Keep your appointments so your doctors can make sure your teeth and bones are staying aligned as originally planned.

### Family and Friends

During the entire orthognathic process, your family and friends play a big part in supporting your decision. But after orthognathic surgery, you may look different to them. Talk to your family, friends, and coworkers about the changes that have been made. Resume your activities with them, and assure them that you're the same person, only better.

### Making the Most of Your New Appearance

Because of the change in your face, you may find yourself wanting to change your hairstyle or experiment with different types of clothing. You may even want to get a makeover to learn techniques that can enhance the "new" you. Have fun with your new look, and don't be afraid to try something different!



SURGERY    RECUPERATION/BRACES OFF

AFTERCARE

1-5 hours

6-12 months

...[unclear]...



## A CHANGE OF FACE

By working with a skilled orthognathic team—your orthodontist and your surgeon—you can have your teeth and the bones in your jaw moved to a more balanced and functional position. You may be pleasantly surprised at the difference it makes in how your face looks and feels.

