



# Venetian Pointe Dentistry

A Newsletter Prepared by Richard C. Rampi, DMD

WINTER 2015

## Invisalign® A “Clear” Alternative to Conventional Braces

*One of the nice facets of being a general dentist is the ability to provide for my patients a wide variety of procedures. While I enjoy all of these, there is one treatment modality that I especially consider to be a favorite. This is the subject of the feature article of this year’s newsletter: Invisalign.*

### ALSO IN THIS NEWSLETTER:

“This and That” from the Office  
From the Doctor’s Desk

### INVISALIGN – A HISTORICAL PERSPECTIVE

The Invisalign process makes use of a product offered by a company named Align Technology, Inc. This global company was founded nearly 20 years ago (in 1997). Align Technology pioneered the concept of “invisible orthodontics” and made this commercially available beginning in 1999. The national headquarters for this company is located in San Jose, California. The use of their product was first implemented at our office in 2003.

According to their website (aligntech.com), Invisalign is the world’s leading means of orthodontically straightening teeth by use of an “invisible orthodontic product”. In fact, over 3 million people worldwide have been treated with Invisalign aligners. Invisalign can serve as an alternative to conventional braces; instead of brackets, wires, and elastics, the controlled forces used to straighten teeth are provided using clear trays that are “virtually invisible” (hence, the name Invisalign).

### HOW INVISALIGN WORKS

Invisalign uses a series of clear custom-made removable trays called “aligners” which are fabricated out of a strong, medical-grade plastic. Forces are built into the aligners which gradually straighten teeth. Each aligner is worn for two weeks and moves teeth incrementally. The patient progresses to a new set of aligners every two weeks with the new set picking up where the prior set left off and sequentially further moves the teeth towards a proper alignment and a healthy, beautiful smile.

### WHAT’S NEEDED TO BEGIN TREATMENT

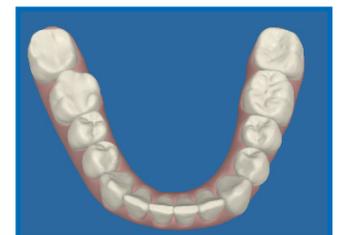
The Invisalign process begins with the patient describing their goals, an examination of the patient’s mouth, and consultation to discuss what treatment is needed to accomplish the desired result and whether there are any contraindications for treatment (such as periodontal bone loss). As is true with conventional braces, treatment is not begun until satisfactory oral health is achieved and the patient demonstrates the ability and willingness to maintain proper oral health.

The aligners are typically ordered from impressions made of the patient’s mouth (an alternative would involve an optical scan directly of the teeth). An impression/scan is made of the patient’s lower teeth, upper teeth, and their bite. Certain photographs are required along with a current panoramic radiograph. The impressions are shipped while the photographs and digital panoramic radiograph are sent via the Internet to Align Technology in San Jose, California.

At Align Technology, the impressions are subjected to a CT scan. The CT (computed tomography) is used to virtually construct the 3 dimensions of the patient’s mouth. Computer software is used to provide the calculations needed to straighten the teeth. CAD software called a “ClinCheck” is prepared and viewed by the treating dentist. ClinCheck screenshots are shown below which demonstrate the before and after views to alleviate crowding.



Before



After

Once the ClinCheck is accepted by the treating dentist, all of the aligners needed to provide the orthodontic treatment are fabricated using a CAM unit (computer-aided manufacturing ...like a 3D printer). The aligners are received at the dentist's office and treatment begins typically one month after the data is first sent. Provided below are topics and features relevant to Invisalign treatment that must be considered and understood by the patient before embarking upon treatment.

### TREATMENT TIME

The amount of time needed to complete treatment varies depending upon the complexity of the case. For minor teeth movements, treatment time can be as little as 6 months or less. On the other hand, a complicated case can take 2 years or more. In my practice, a treatment time of 1 year and 3 months is typical.

Whether a case is relatively simple or complicated, it's necessary that the aligners are worn at least 20 – 22 hours per day for a period of 2 weeks before switching to a new set of aligners. Unlike conventional braces which are fixed ("not removable"), the aligners are removed before eating and drinking (except for plain water); otherwise, the teeth and aligners are cleaned and the aligners must be worn. Like self-help programs (such as a fitness membership), the more compliant the patient is the more likely the desired result will be accomplished on time. Patients are typically seen every 6 – 8 weeks to check on progress and to dispense additional aligners.

### ATTACHMENTS

Certain teeth require more force application than others to move them in a desired direction. In this case or if needed for added retention of the aligner, an attachment is bonded to the side of the tooth to allow for the aligner to grip the tooth better (it acts like a "handle"). The attachments are carefully designed by Align Technology. A template is fabricated by the company that allows the dentist to exactly mold the attachment against the tooth. The attachment is made of a tooth-colored filling. They are left in place during treatment then removed upon completion of treatment. A typical case at my office requires attachments for 8 to 10 teeth.

### INTERPROXIMAL REDUCTION (IPR)

In cases where crowding is present, sometimes room must be created in order to move the teeth. There are a few ways that space is created with Invisalign; one such way is called IPR (interproximal reduction). The prescribed amount is shown on the ClinCheck and carefully studied by the treating dentist before the ClinCheck is accepted. When performing IPR, a disk or strip is used to literally create a gap between the prescribed

teeth (the tooth on each side of the gap is made slightly narrower in the process). In doing so, a "parking spot" is created to alleviate the crowding and allow for movement of the misaligned tooth/teeth. The IPR process takes only a few seconds per space, requires no numbing medicine, and does not injure the teeth. Once the teeth are properly aligned, the space created will have been closed.

### MISCELLANEOUS CONSIDERATIONS

Sometimes even when the patient has been perfectly compliant, the end-result is not considered to be satisfactory. In this case, new impressions are made and additional aligners are ordered. This is called refinement. At my office, refinement is included in the initial fee. One refinement is not uncommon.

As is true with any orthodontic treatment, soreness is typical when teeth are moved. Also as is true with any orthodontic treatment, there will be "memory" in the bone that will result in the teeth wanting to return to their prior position. In order to prevent relapse, a retainer has to be worn "for as long as you want your teeth to stay straight". The retainer looks similar to an aligner but worn typically only at bedtime. An added benefit to wearing the retainers is they act like protective guards while sleeping which will protect the teeth against wear and cracking as a result of nighttime clenching which is commonplace.

Finally, as is true with any orthodontic treatment (or any other treatment for that matter), there are risks inherent to orthodontically moving teeth. It's possible a tooth or teeth could discolor, a nerve to the tooth or teeth can become non-vital, root(s) can resorb or shorten, periodontal bone loss can occur, or other possible unwanted consequences which could compromise the esthetics or health of the affected tooth/teeth can occur. While risks are inherent, at the time of this writing, I have not experienced any untoward sequelae that I'm aware of.

### A CASE PRESENTATION

Shown below is my hygienist Kimberly with her niece Kimber who wanted her teeth straightened and whitened. Kimberly and Kimber were nice enough to allow me to present Kimber's "before and after" photos. Thank you, ladies!

